# Leather goods and gloves

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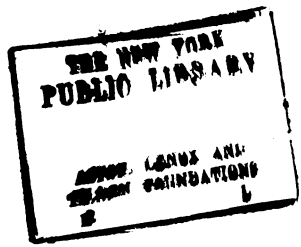
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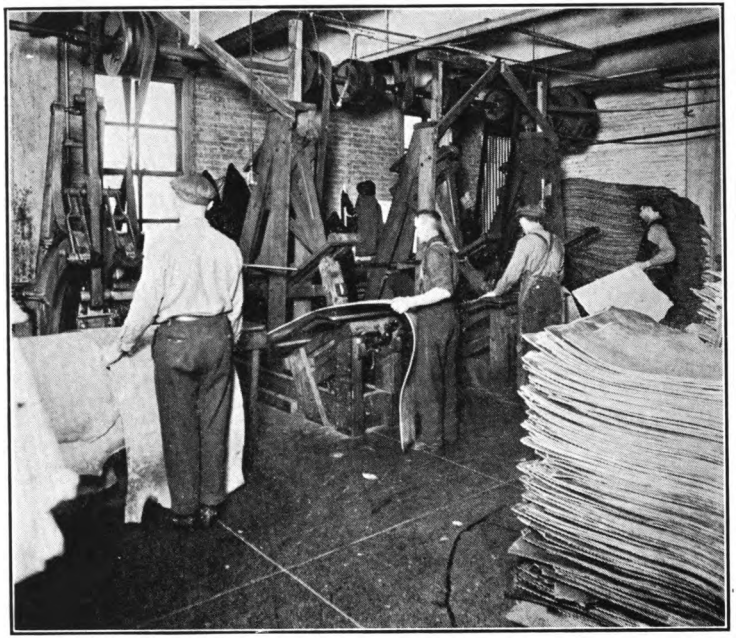

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Finishing Leather in the Tannery

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MERCHANDISE MANUAL SERIES

# LEATHER GOODS AND GLOVES

BY

HELEN MARY LEHMANN, B.A.

Member of Editorial Staff, *Dry Goods Economist;* formerly Instructor in Merchandise, New York City Department Stores, Texas State University, and New York University

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**This Series is Dedicated**

to Mrs. Henry Ollesheimer, Miss Virginia Potter, and Miss Anne Morgan, who desiring to give greater opportunity for advancement to commercial employees and believing that all business efficiency must rest upon a solid foundation of training and education gave years of enthusiastic service to the testing of this belief.

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# MERCHANDISE MANUAL SERIES

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## EDITOR'S PREFACE

As "Department Store Merchandise Manuals" these books were originally written for salespeople and were designed to give them reliable information concerning the sources and manufacturing processes of the merchandise which they handle. When it was necessary to deal with scientific or historical material it was treated as simply and concretely as possible and the point of view taken was that of business rather than that of the school or laboratory. In this form they have proved their practical value not only to the department store salesperson but in the specialty shop. It has been pointed out, however, that the material has a wider scope than that of sales manuals alone.

As reference books, librarians will find the short, clear statements and full indexes invaluable.

As an encyclopædia of merchandise the series contains scientific information in a simple, compact form which makes it available for children and others to whom the subjects treated are unfamiliar.

As textbooks they are adapted for use in commercial schools, high schools, night schools, settlement classes, and by teachers of household arts and domestic science.



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As source books for practical story-telling, kindergartners, primary and vacation school teachers will find in them an abundance of interesting material for short "true" stories on the various industries and crafts, the manufacture of household articles, such as pins and needles, as well as the making of pottery, glass, and steel. These manuals contain just the material often hunted for in vain by teachers and librarians.

As household helps and shopping guides the young housekeeper will find the manuals her best friends because they not only describe the manufacturing processes but tell her how to distinguish well-made articles of good materials from the inferior and badly made. They also tell her how to care for the clothing or household goods which she has bought.

For salespeople and storekeepers they supply the general and specific information about their merchandise which is indispensable to efficiency, yet very hard to gather from the scattered sources upon which they now depend.

These changes should enlarge the usefulness of the manuals without losing any of their specific value in the field of salesmanship.

We wish to express our grateful appreciation to the manufacturers and experts who have given us such valuable counsel and cordial co-operation.

BEULAH ELFRETH KENNARD.

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## AUTHOR'S PREFACE

It is the purpose of this manual to supply information in regard to the different kinds of leather and the methods of making the various articles sold in the Leather Goods Department. A knowledge of leather is becoming increasingly more important as the many new processes of tanning and finishing leather are developed and the manufacture of leather goods becomes an even greater industry.

The information presented is the result of observation of methods in some of the leading tanneries and leather goods manufactories of the country.

In order to complete this outline manual on leather goods, a section on gloves has been added, as the importance of knowing about gloves, their manufacture, qualities, and care, is in proportion to their universal use.

Leather in all of its manufactured forms is deserving of much more study than it has received from purchasers and students of commercial products as well as salespeople. The chapters giving suggestions to the latter are equally valuable to the purchaser because they refer to quality, suitability, and service, not to methods of selling.

Grateful appreciation for assistance is due to C. R. Oberfell of the American Leather Chemists' Association; W. H. Mulford, Sales Manager of England Walton Com-



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pany, leather manufacturers, Philadelphia; Kaufherr and Company, tanners; K. Kaufmann and Company, manufacturers of leather goods; Rice and Wallenstein, manufacturers of hand-bags; the Technology Department of the New York Public Library; and for illustrations to K. Kaufmann and Company, F. A. Ringler Company, Louis Meyers and Sons, and W. H. Mulford.

HELEN MARY LEHMANN.

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## CONTENTS

### PART I—LEATHER GOODS DEPARTMENT


| CHAPTER | | PAGE |
|---|---|---|
| I | INTRODUCTORY . . . . . | 1 |
| | Divisions of the Department | |
| | Characteristics of the Stock | |
| | Knowledge of Leather Essential | |
| II | LEATHER . . . . . | 4 |
| | Differences in Leathers | |
| | Cow or Calf | |
| | Sheep | |
| | Goat | |
| | Deer | |
| | Horse | |
| | Pig | |
| | Kangaroo | |
| | Seal | |
| | Walrus | |
| | Alligator | |
| | Fish and Other Miscellaneous Skins | |
| III | CLASSIFICATION OF SKINS . . . . . | 12 |
| | The Raw Goods | |
| | Quality | |
| | How to Distinguish Different Grades | |
| | Weight and Size | |
| | Method of Preservation | |
| IV | PREPARATION FOR TANNAGE . . . . . | 17 |
| | Condition of Raw Material | |
| | Cleansing | |
| | Liming | |




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CHAPTER PAGE

Softness
Resistance to Water
Finish
Color

XI SUBSTITUTE LEATHER . . . . . 67
Varieties
Reasons for Large Amount of Substitute Leather
Imitations Containing Leather
Leather-Board
Imitations Containing No Leather

XII PREPARATION OF LEATHER FOR BAGS . . 71
Kinds of Leather Used
Colors
Finishing Processes
Graining
Boarding
Glossing or Glazing
Embossing
Fluffing
Buffing
Enameled Leather
Waxed Leathers
Satin or Glove Leathers

XIII MANUFACTURE OF TRAVELING BAGS AND SUITCASES . . . . . 80
Varieties of Traveling Bags
Styles
Materials
Making the Outside of the Bag
Corners
Lining
Attaching to Frame
Finishing
Sizes
Styles of Suitcases
Materials for Suitcases
The Body

Digitized by Google

CHAPTER PAGE

Linings for Suitcases
The Making of Suitcases
Other Bags

XIV HAND-BAGS AND PURSES . . . . . 91

Articles
Leathers
Finishes for Leather
Morocco
Cordovan
Levant
Suede Leather
Silk
Clasps and Trimmings
Gold
Silver
Other Metals
Making Hand-Bags
Cutting
Sewing
Attaching
Pocketbooks and Purses
Other Styles
Articles for Men

XV FITTED BAGS AND CASES . . . . . 105

Varieties
Toilet Cases
Toilet Articles
Materials
Complete Manicure Sets
Simple Manicure Sets
Manufacture of Toilet Cases
Pullman Bags
Over-Night Cases
Motor Toilet Cases
Fitted Traveling Bags
Fitted Suitcases
Luncheon Cases
Picnic and Tea Baskets

Digitized by Google

CHAPTER PAGE

XVI BRUSHES . . . . . 112

Necessary Qualities
Bristles
Hog Bristles
Fiber Bristles
Backs of Brushes
Wood
Hard Rubber or Ebonite
Celluloid
Amber
Tortoise Shell
Ivory
Leather
Silver or Gold
Manufacture of Brushes
Compound Set
Compound Drawn
Care of Brushes
Combs

XVII TRAVELING ACCESSORIES AND AUTOMOBILE SUPPLIES . . . . . 121

Traveling Accessories
Materials
Automobile Supplies
Thermos Bottles

XVIII LIBRARY EQUIPMENT . . . . . 126

Articles
Desk Sets
Stationery Cabinets
Library Sets
Desk Baskets
Portfolios
Recording Books
Brief-Cases and Music Folios
Albums
Covers
Materials
Decoration

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CHAPTER PAGE

Tooling
Staining
Stenciling
Gilding and Bronzing
Color
Designs
Methods Used for Different Leathers
Tools
History of Leather Decoration
Modern Centers of the Industry

XIX HISTORY AND SOURCES OF LEATHER . . . 138
Antiquity of Leather
Simplicity of Primitive Methods of Tanning
Beginning of Modern Methods
Development of the Industry in the United States
Sources of the Raw Material
The Leather Industry in Other Countries

XX SUGGESTIONS TO SALESPEOPLE . . . . 146
Arrangement and Display
Material
Manufacture
Points Desired in a Traveling Bag
Suitability
Suggestions as to Care
Effect of Water
Effect of Heat
Effect of Oil
Effect of Light and Gas
Effect of Acids and Alkalies
Pastes, Polishes, and Dressings

XXI CLASSIFICATION OF THE STOCK OF THE LEATHER GOODS DEPARTMENT . . . 155

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## PART II—THE GLOVE DEPARTMENT

CHAPTER PAGE

XXII INTRODUCTORY . . . . . 163
Description of Department
Divisions of Department

XXIII GLOVE LEATHERS . . . . . 165
Leathers Used for Gloves
Kid
Sheepskin
Sources of Lambskin
Cape
Mocha
Chamois
Suede and Glacé
Characteristics of Glove Leather
Preparation of Glove Skins
Cleansing
Liming
Dehairing
Branning
Tanning Glove Leathers
Tawing
Chamoying
Finishing Processes—Doling
Treatment of Washable Leather

XXIV MANUFACTURE OF LEATHER GLOVES . . 176
Glove Patterns
Cutting
Glove Parts
Decoration
Sewing
Finishing
Laying-Off

XXV FABRIC GLOVES . . . . . 182
Materials
Silk
Cotton

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CHAPTER PAGE

Wool
Manufacture of Knitted Fabrics
Cutting and Sewing
Characteristics of Fabric Gloves
History of Knitting

XXVI MEN'S, CHILDREN'S, AND SPECIAL LINES OF GLOVES . . . . . 188
Men's Gloves
Misses' Gloves
Children's Gloves
Mitts
Lined Gloves

XXVII HISTORY OF GLOVES . . . . . 193
Antiquity of Gloves
The Modern Industry
Introduction of Machinery
Glove Centers of France
Glove Centers in Other Countries
Glove-Making in the United States

XXVIII KNOWLEDGE AND CARE OF GLOVE STOCK 198
Knowledge of Prevailing Dress Fabrics
Care of Glove Stock
Importance of Correct Fitting
Selecting the Proper Glove
Fitting the Glove
Styles
Sizes

XXIX CARE AND CLEANING OF GLOVES . . 207
Care of Gloves Not in Use
Cleaning
Washing

XXX CLASSIFICATION OF STOCK OF THE GLOVE DEPARTMENT . . . . . 211

APPENDIX (Books for Reference) . . 215

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# LIST OF ILLUSTRATIONS


Finishing Leather in Tannery . . . . . *Frontispiece*

FIGURE FACING PAGE

1. Common Leathers . . . . . 6
2. Fiber Board . . . . . 70
3. Traveling Bag of Seal . . . . . 80
4. Gladstone Bag . . . . . 82
5. Cabin-Top Bag . . . . . 86
6. Fitted Toilet Case . . . . . 110
7. Fitted Traveling Bag . . . . . 110
8. Methods of Inserting Bristles in Brushes . (on page) 119
9. Examples of Leathers, Stitching, Sewing, Embroidery, and Seams of Ladies' Gloves . . . . . 180
10. Sueded Fabric Novelties . . . . . 186
11. Examples of Leathers, Stitching, Clasps, and Seams of Men's Gloves . . . . . 188




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# LEATHER GOODS AND GLOVES

## Part I—Leather Goods Department

### Chapter I

### INTRODUCTORY

**Divisions of the Department**

The merchandise of the Leather Goods Department when it is well arranged in the show cases and on the shelves and counters makes one of the handsomest displays of the store. Its wide variety of articles is usually grouped into the following seven general divisions, each being a complete stock in itself:

1. Suitcases and Traveling Bags
2. Hand-Bags and Purses
3. Fitted Bags, Toilet Cases, and Toilet Articles
4. Traveling Accessories and Automobile Supplies
5. Sewing Equipment, Fancy Boxes
6. Library Equipment and Brief Cases
7. Dog Fittings, Belts, Trunk Straps

**Characteristics of the Stock**

Suitcases are made of leather, fiber, wicker, and



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matting. These are staple stock and do not vary much from season to season in quality, size, and style. They may be fitted or unfitted. Week-end cases vary more.

Traveling bags, generally made of the stronger leathers, as sole, calf, and walrus, are shown in several recognized standard styles. They may be fitted or unfitted, and in sizes varying to suit the purpose. The prevailing colors are tan and black.

The second division of stock, comprising hand-bags, purses, pocketbooks, wallets, bill folders, card-cases, etc., is large and varied in styles, sizes, and colors.

Hand-bags are of beautifully finished leather and rich textiles, such as Morocco and seal, velvet brocade and moire. Some of them are conveniently fitted; some elaborately trimmed with fringe and beadwork, or decorated in handsome metal mounts; some are of Oriental leather, artistically hand-painted in harmonious colors; others are of suede, patent leather, or dull-finish leather which may be decorated in appliqué of green and gold.

In this stock as in the fancy leather goods there are noticeable changes from year to year. Variation is shown in shapes, styles, and materials.

Leather novelties, as desk sets, portfolios, cases, boxes, belts, etc., are constantly appearing in new and popular color effects, in original styles, and in clever designs.

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**Knowledge of Leather Essential**

The principal material for the goods of this department is leather, although metal and wood for frames, and textiles for linings are of great importance and affect the quality, durability, and suitability of the finished article.

Since leather is the chief material, it is essential to have a knowledge of the various kinds, their wearing qualities, preparation, and appropriateness for use in the various forms of merchandise. Almost every kind of leather both genuine and imitation is represented — from the strong and tough genuine cowhide of suitcases or the fine-grained imitation seal of the handbag to the soft and delicate snakeskin of which coin purses are sometimes made.

For bags and suitcases the most common leathers are cowhide, calf, sole, alligator, walrus, pigskin, seal, and colt. These may be called long grain, boarded, or enameled according to the finish given them. In the hand bags are seal, Morocco, Russia, goat, sheep, and other light leathers. These are also used in the fancy goods together with lizard, snake, and other novelties, made up in attractive shapes, natural or imitation grain, and with artistic decoration in design and color.

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# Chapter II

## LEATHER

### Differences in Leathers

The skins of the various animals have characteristic qualities which make them valuable for some one or more of the particular uses to which leather is put. A great deal depends upon the structure of the skin. In some the fibers of the skin are short and irregular, in others long and arranged in parallel order or interlaced. The fibers also vary in strength. Large fibers usually occur in parallel arrangement and are often weak, as in sheepskin, making the skin unsuitable for purposes where durability is essential. The flexibility of this skin, however, and its suitability for dyeing make it valuable for gloves and fancy leathers.

Alligator and crocodile skins are valuable because of their unusual grain and also because of their durability. Other leathers have a recognized quality and suitability for certain purposes. The leather dealer and manufacturer select and prepare their leather goods with this in mind.



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### Cow or Calf

The differences between cowhide and calf are differences due to the age of the animal. Cowhide is taken from animals over a year old, calf from yearlings. The French are very skilful in treating the skins of five and six months' old calves. If the calves are younger than this the skins are only suitable for parchment.

The fibers of both cowhide and calf are tough and closely interwoven, so that the leather is strong, durable, and impervious to moisture, yet of fine texture, handsome grain, and pliable.

Cowhide is used for suitcases, traveling bags, and brief cases, where a heavy, dependable leather is needed.

Calf is excellent for fancy goods, and, as it takes a high polish, is much used for enameled and patent leathers.

### Sheep

Sheepskin is a fine, pliable leather, but is inferior to kid in firmness and texture. It is used largely for shoe linings and gloves. The skins of most domestic sheep are not strong enough for the outer part of the shoe or for bag leathers. Some Asiatic sheep hides, however, are strong enough to be used for the cheaper grades of women's and children's shoes. Sheepskins

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are not sold by weight, as are other skins, but classed as firsts, seconds, thirds, etc.

Lambskin has a fine grain and delicate texture and can be easily dyed. It is, therefore, one of the most desirable glove leathers.

**Goat**

Goatskin makes a soft, pliable, and firm leather, which takes a good finish for colored goods such as Morocco or Turkey leather. It differs from sheepskin in having its fibers interlaced instead of running in parallel rows. For this reason it holds together in all directions instead of splitting in layers as sheepskin is apt to do. The best skins come from Mexico where the animal is used as a farm and dairy animal, and are known as Tampico skins. They are large, and produce a plump leather of fine grain.

Good goatskins also come from the Cape of Good Hope and the mountain districts of Europe. The fibers of these skins are long, thick, and strong. Swiss goatskins have a fine grain and make a strong, durable leather. Russia produces large numbers of goats. Spanish and German goatskins are of a high grade. Those from Turkey, known as Levant, are coarse in grain and texture. African skins are fine and clean and produce leather of good substance. Abyssinian goatskins have a tough, compact, bold grain.

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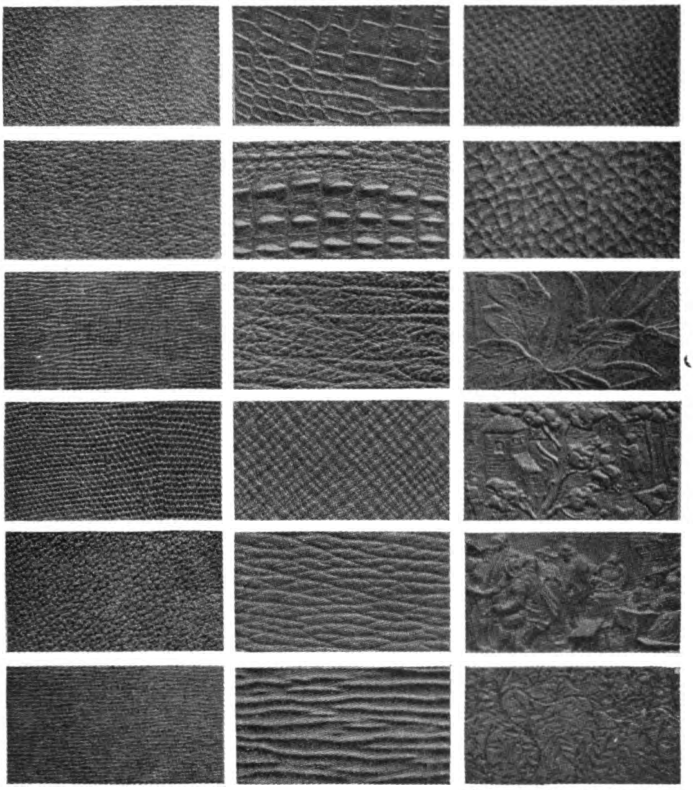

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| | | |
|---|---|---|
| Morocco | Alligator (Fine) | Seal |
| Pigskin | Hornback Alligator | Seal (Coarse) |
| Box Calf | Goatskin | Fancy Pattern |
| Lizard | Cross Grain | Japanese Pattern |
| Levant | Walrus (Fine) | Defregger Model Design |
| Persian Goatskin | Walrus (Coarse) | Leaf Design |

Figure 1. Common Leathers

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The goats of all these various countries differ because of the conditions under which they pasture and grow. They are usually raised in small numbers, especially in India, Africa, or China. The skins are gathered up by small collectors who send them to the large dealers.

Less time is required for tanning of goatskins than for the heavier skins, and all kinds of tannage are used. Goatskins are used today largely for patent or enameled goods, for matt or dull kid, and also for Morocco leather. They appear in these finishes in the bags, pocketbooks, fancy goods, uppers of ladies' shoes, etc.

Kid or young goatskin is a thin, flexible leather used for bags, pocketbooks, and pre-eminently for gloves. It is too delicate for shoes, though modern methods of tannage are successful in toughening goatskin so that it may be used instead of calfskin.

**Deer**

Deerskin is a superior skin. It is used principally for uppers of shoes or for chamois or wash gloves. Buckskin was formerly deerskin, but today it is largely suede-finished cow or calfskin.

Elkskin, which is obtained from a species of deer which inhabits the northern forests, makes a strong, thick leather for gloves.

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The largest deer forests are in Scotland where the deer are kept wild.

Chamois, which is a species of deer, yields a soft, pliable leather. The animal lives in the highest part of the Alps. Most of the so-called chamois of today is made from split sheepskin.

### Horse

Horsehide is a tough leather, particularly useful for japanning and enameling. It possesses about twice the strength of calfskin. Because the fibers are tightly interlaced it is more nearly water-proof than the skin of any other land animal.

The wild horses of South America and Russia supply hides for most of this leather. Only a comparatively small amount of leather from each horse is used, considering the size of the animal. A strip about 3 feet long and about half as wide is taken from the rump.

Coltskin, which is split horsehide or coltskin, has a firm, solid texture suitable for patent leathers.

### Pig

Pigskin is used for bags, saddles, and fancy leather goods. It is a tough, light colored, handsome, flexible leather. Good pigskin is prepared in Austria and Scotland.

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### Kangaroo

Kangaroo is a leather of excellent quality, strong, durable, supple, and elastic, but the supply is limited and uncertain. If light it makes a good substitute for kid.

Wallaby is a variety of kangaroo. Both animals live in Australia.

### Seal

Sealskin is very largely used for bags, purses, and in fact for all fancy goods. It is an exceedingly strong leather, of compact texture, generally finer on the grain, or hair side. When seal has a large, coarse grain it is known as Levant seal. Seal is often used in enameled or japanned goods, and it is sometimes split. Figure 3 shows a traveling bag of seal.

The seal used for leather goods is an animal found in Labrador and other Arctic regions. It differs from the Alaskan fur seal in having a much coarser coat. It is captured for its oil as well as its skin. Some seal fishing expeditions bring in as many as 30,000 skins.

### Walrus

Walrus skin is a rugged, tough leather used for traveling bags, for machinery belts, and for uppers of shoes. The hide is tawny brown in color, flexible, and

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so tough that bullets penetrate it with difficulty. Like the seal the walrus is an Arctic marine animal, and its supply has been greatly reduced by the reckless slaughter by sealers and whalers.

### Alligator

Alligator is a fine, tough, close-fibered leather of scaly surface, used principally for bags, portfolios, purses, cigar cases, etc. The leather is taken from the belly and flanks of the animals. Only the skins of young animals are used and the backs of these are thrown away as they are too heavy. The skins are sometimes twenty feet long. The chief sources of supply are Florida, Louisiana, Central and South America.

The crocodile is closely allied to the alligator. The skin of the whole body is a scaly, hard, horny waterproof covering.

### Fish and Other Miscellaneous Skins

Porpoise skin is soft, strong, and tough, and is much used for boxes and fancy goods. The upper surface of the skin is almost black and the under part white. The porpoise is a small whale found in northern oceans.

Sharkskins are valuable for shoe-making and saddlery and also for fancy goods.

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Various other fishskins are used for purses and other light goods.

Frogskins are sometimes used in novelty goods, card-cases, purses, etc.

Snakeskins, such as those of the African and Asiatic boa constrictor, are used for fancy goods, purses, etc., and are treated so that the natural colors and markings are preserved.

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# Chapter III

## CLASSIFICATION OF SKINS

### The Raw Goods

The skins from which leather is made are collected from ranches, slaughter houses, or fellmongers (traders in skins) by leather merchants.

The manufacturer buys the skins from this leather merchant, usually through a broker, who has expert knowledge in selecting stock, although some large houses buy directly from the importers.

The three things which are to be considered in buying the raw goods are:

Quality
Weight or size
Method of preservation

### Quality

The quality of hides and skins is affected by the conditions under which the animal has lived, such as the locality and climate from which it comes, its food, age, and condition of health when killed. The Buenos Ayres hides obtained from the southern parts of the



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country are considered stouter and of finer texture than those of the Uruguay and Rio Grande. The fattening of cattle and sheep for the production of good beef and mutton renders the hides much thinner and weaker than those of less pampered animals, though they may still be of good size and weight. Wild cattle exposed to the weather have thick skins of coarse texture, while breeding to increase meat and milk produces a thinner, larger, and finer hide.

**How to Distinguish Different Grades**

The hides and skins of the various animals can be distinguished by size, thickness, fineness or coarseness of texture, and by the arrangement and size of the hair cells which appear on the grain side. These cells become larger as the animal grows older. For this reason cowhide has a coarser grain than calf, and goat than kid.

Sex also determines the quality of hide. Cow and especially heifer hides are thin and fine, while bull hides are loose in texture. Oxhide is finer and more compact than bull.

Different parts of the body also produce different qualities of leather. Oxhides, from which sole leather is made, are thickest on the back.

The skins of diseased animals show inferiority after tanning if not before.

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Knowing these characteristics and being able to control them to a certain extent, the stock raiser and leather dealer may unite to produce and select the various skins suitable for manufacturing purposes.

**Weight and Size**

Pelts, the term applied to all skins before they are converted into leather, are known commercially under three different heads as:

Hides
Kips
Skins

Hides are the skins of the larger and full grown animals, such as the ox, cow, bull, buffalo, horse, and hippopotamus, and are used for sole leathers, heavy bags, machinery belting, etc. In weight the hides are above 25 lbs.

Kips are the skins of smaller or under-sized animals of the bovine race. The word is from "kip" meaning the skin of the small native cattle of India which is imported into England in enormous quantities both in the raw and partly tanned state. They are suitable for the heavier fancy leather goods and for shoes. Kips usually weigh between 15 and 25 lbs. Below 15 lbs. they are known as skins.

Skins are the skins of smaller animals, such as the calf, sheep, goat, deer, etc. They are light and pliable

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and are used for lighter shoes, gloves, bags, and fancy leathers.

**Method of Preservation**

Skins are also classified according to the method and state of preservation in which they come to the tannery, as:

Fresh or green, as from the slaughter houses of Great Britain or the United States, fresh from the animal.

Dried, as imported from Buenos Ayres and the Cape of Good Hope, stretched on boards in the sun.

Salted, as from the River Plata and Australia, salt spread over the flesh side.

Dried and salted, as imported from Brazil and the West Indies.

The green hides are of course more readily and less expensively prepared and for this reason more desirable, other things being equal, since the dried and salted ones must be first brought back to the condition of green hides before they can be tanned. Hides from the more temperate regions are salted and exported as wet salted, while those from the tropics and dried in the sun, are dry salted.

In general the method of removing and preparing

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the pelt for the tanner is that employed in the stock yards of the great packing houses, whence they are shipped to the tanneries as a by-product of the food supply industry.

In dry, hot countries the hides are preserved by drying. Sun-drying often has bad effects, the rapid evaporation of the moisture of the skin sometimes resulting in blisters which later make holes in the leather. When a light layer of salt is added before drying, these hides are known as dry salted. Foreign sheep and goatskins are usually dried.

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# Chapter IV

## PREPARATION FOR TANNAGE

### Condition of Raw Material

The condition of the raw hides received by the tanner determines to some extent the method of treatment that he follows in their preparation for leather.

A green or fresh hide is ready at once for the first or cleansing process. Dry hides must first be softened. This is done by soaking them in cold water, breaking with a blunt tool on a beam, beating by a machine in which a hammer gives repeated blows, and rubbing to make them supple. In case the skin is very dry and thick this process may take from 10 to 14 days.

### Cleansing

First the skins, which are quite foul because of the adhering flesh, blood, and dirt, are washed and freed from these external impurities, and, in the case of salted skins, from the salt which has been used in preserving them. The soaking bath may be either in kicking machines or in running water. The process lasts from 1 to 12 hours according to their condition.



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If necessary, the pelts are taken out and scraped with a blunt knife or tool, trampled again in the water and once more washed.

The old-fashioned method of softening hides was to place them in water for a week or ten days. During this time bacteria injured the hide substance. Today the desired results are secured by putting them in a very weak acid or alkaline bath which makes the hide fibers swell and absorb water, and thus both hastens the process and results in a stronger skin.

### Liming

The next process is in order to soften the roots of the hair which still remains on the skin, so that it may be easily removed. This may be done in several ways, but in England and the United States the lime process has found special favor because of its cheapness and safety.

### Structure of Skin

In order to understand this and subsequent processes it is necessary to understand the structure of the skin.

A fresh skin consists of two layers, an outer, the epidermis (cuticle or scarf skin), and the inner, or true skin, the cutis or pelt of the animal.

The epidermis is very thin. It is composed of a series of scales which in life are constantly wearing

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away and being renewed by new cells from below. From this layer the hair grows and the fats and sweat glands are developed. The roots of the hair are in the skin underneath. The hair in the case of sheep takes the form of wool, in pigs of bristles, in fur-bearing animals of fur.

The corium, cutis, or true skin, is much thicker and is composed of interlacing bundles of connective tissue or fibers of extreme fineness bound together by a substance of different composition. It is this inner skin which is made into leather.

Underneath this corium lies the fat and flesh of the animal.

### Action of Lime on the Skin

When the fresh skin is thrown into the bath of caustic lime, the cuticle with its hair readily separates from the cutis, while the flesh under the cutis is also made soft and loose and easily removed by a knife.

In addition to loosening the hair, the liming process swells and splits up the fibers of the cutis, removing more or less of the cementing substance between the fibers and makes the skin softer, fuller, more porous, and pliable. These qualities are desirable for fancy bags, uppers of shoes, furniture and automobile upholstery leathers, etc., but not for sole-leather, which must be tough and stiff. For sole-leather, therefore,

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the liming is arranged so as to produce the swelling with as little dissolving action as possible. Excellent sole-leather is produced by lime and water about the temperature of blood heat, and in a couple of days the pelts are dehaired with little loss of the hide substance itself.

**Sweating**

A "sweating" process is sometimes employed instead of liming, as in the case of the American sweated sole-leather. In this process the green hide is hung in a closed room in a temperature of about 70° F. Decomposition sets in, attacking the hair roots and loosening them. Too much sweating weakens the skin and the hide must be carefully watched and removed before it is ruined. When taken out of the sweat room it is put into a lime bath to stop the putrefaction.

Sometimes a weak arsenic preparation or sulphide of sodium is used to loosen the hair.

**Dehairing**

When the hair has been loosened by one of these several methods, the skins are taken to the dehairing room for the mechanical operation which actually removes the hair and leaves the skin ready for tanning.

The old method of dehairing was to throw the skin

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over a beam or a sort of convex sloping table of wood or cast iron and scrape the hair off. The workman did this with his hands or with a blunt two-handled knife. He was obliged to wear gloves as the dehairing solutions, strong enough to loosen the hair from the pelt, were too strong for the hands. He had to be careful not to scratch or injure the pelt which is always soft, and in the case of thin skins, tender. He had to be sure to remove all the hair and in the case of sole-leather not only the hair but as much of the fat glands and hair roots as possible. This mechanical process of removing hair is now largely performed by unhairing machines which perform practically the same process in much less time and with greater facility. A disadvantage of the machine, however, is that if the skin is weak or defective the harsh action of the spiral knives may injure it and make it practically worthless.

The hair or wool removed is gathered up, washed, dried, packed, and sent to carpet factories. The hair may also be used in making felt.

**Fleshing**

When the hair has been removed the skin is next put into cold water which not only partially removes the lime and continues to loosen the flesh left on the hide, but also aids the swelling process begun by the dehairing solution.

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The skin is soon taken from this bath for the fleshing operation. It is thrown over the beam, and the workman scrapes off all the loose tissues on the inner or flesh side of the skin with a fleshing knife. This operation may also be performed by machines. When the machine operation is used, the skin is spread flesh outwards on a special rubber roller and a cylinder fitted with spiral knives runs over it, removing the flesh. Careful attention must be paid to the setting of the knives and the rubber roll or the work will be defective.

**Rounding**

For a long time it was the custom, after dehairing, to tan hides whole. In modern tanneries, however, the different sections of the hide, known as the "butts" or backs, "shoulders," and "bellies" are done separately, because these sections are of different texture and require different treatment. The pelts are "rounded" as follows:

Two men take the dehaired hide and double it from end to end, grain side out. The head, including the cheeks and shoulder, is cut off and also the sides or bellies. What remains of the skin, the butt or back, is the chief part of the hide. The other parts are used for lighter leathers and the small pieces for glue. This is a process requiring care and judgment as the proper

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place to divide the various parts varies with different skins.

**Raising and Swelling**

The swelling begun in earlier processes is now continued. Its object is to prepare the tissues for a more complete absorption of the tanning materials. The lime which has been useful so far must now be entirely removed, as its presence would interfere with the tannage. Simple continued washing in soft water removes a part of the lime, but a more effective means is soaking the skins in a weak acid bath, which hastens the process.

Care must be taken, however, that the skins do not become too much swollen. If strong liquors are used at first, a hard layer is formed on both sides, retarding the penetration of the tan liquor, but moderate plumping or swelling aids in the final action of the concentrated tanning acids.

The length of time the skins lie immersed in this bath depends upon the size of the skin and the strength of the acid solution. The acid combines with the lime forming a soluble compound which is readily removed from the skin in this form. If the acid is not too strong the skin is in no way injured.

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## Chapter V

### TANNAGE

**Purpose**

The pelts up to this stage are still only raw animal matter full of moisture, which makes them liable to putrefaction or decay. If dried in this condition they are stiff and unyielding like horn. The tanner's problem is to make this translucent mass soft, porous, and opaque, and yet resistant to wear and decay. In other words, leather is tanned to:

1. Avoid putrefaction.
2. Render the skin pliable and soft.
3. Make it impervious to water.
4. Make it stronger for wear.

**Means**

This is accomplished by subjecting the pelt to the action of a vegetable or chemical substance which acts upon the skin fiber and changes it to leather.

As explained in the preceding chapter, the true skin or corium, is composed of interlacing bundles of tissue bound together by fibers. These tissues are dissolved in hot water, forming gelatin; and they are hardened



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and made insoluble, that is, made into leather, by a vegetable substance called tannin or by certain mineral substances.

**Methods**

The various methods of tannage then fall into four different classes according to the tanning materials used:

1. Vegetable, in which astringent acids such as tannin are used. This is the old method.
2. Chemical, in which astringent mineral substances are used. This is again subdivided into:
   - Tawing, in which alum salts are used.
   - Chrome tannage, in which chromium salts are used.
   - Formaldehyde tannage.
3. Chamoying, or a treatment with fats.
4. Electrical.

The remainder of this chapter will be devoted to a description of vegetable tannage. This old method has never been improved upon for producing high-grade leather. It is a tedious process, often consuming weeks or even months, but it produces slowly tanned hides which are the most lasting.

**Tannin**

In vegetable tannage the chief agent is tannin or

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tannic acid, an acid found in a great number of trees and plants. The barks of oak, larch, birch, willow, hemlock, and chestnut trees, the roots of ferns and other plants, the leaves of sumac, pomegranate, tea, and other plants, excrescences of certain plants, like gall nuts, certain extracts, as of the catechu, flowers, fruits, and seed pods, are some of the sources from which tanners have extracted tannin.

A great deal of interesting history surrounds the explorations and journeys to all parts of the world for the discovery of vegetable life which would yield this desirable substance.

The amount of tannin varies with the plants and with the parts of the plants from which it is taken.

The principal sources today are:

Oak and hemlock bark, containing 12 to 15 per cent of tannin.

Sumac, containing 18 to 25 per cent of tannin.

**Oak and Hemlock Bark**

Until recently, Europe and the United States depended chiefly upon the bark of the oak and hemlock for tannin. Oak bark was the oldest and most important source. In the United States there are two bark tanning belts, one extending the whole length of the Appalachian Mountains from New York to Georgia, the other the hemlock region extending from

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Wisconsin to Massachusetts. Both of these regions have developed into important leather sections.

The amount of tannin contained in the barks depends upon the time of the year in which it is removed from the tree, the age of the tree, and the part of the tree from which it comes.

Spring is the best time for stripping the bark, as the sap is then in vigorous circulation and contains much more tannin than in the winter.

The early tanners thought that the bark of the old oaks produced the best tannin, but chemistry and a later experience have shown that the younger trees produce more tannin and also prepare a softer and whiter leather. From 18 to 25 years is now considered the best age for removing the bark.

The bark is removed from the felled trees by cutting two bands around the trunk about 2 or 3 feet apart, joining them by a lengthwise strip, and peeling off the bark by means of peeling irons. These strips are spread out and dried in the shade. For the best results they should be piled loosely together, elevated slightly from the ground, and protected from the rain.

A good oak bark is known by its faint odor, and light brown color when the outer bark is removed. A dark color suggests age and the commencement of decay or undue exposure.

The method of determining the percentage of tannin

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in vegetable substances is based upon its affinity for gelatin, or what is the same thing, hide substance.

### Sumac

Sumac is the highly esteemed tanning material for the genuine Morocco used for bookbindings and other fancy leathers. Sumac is used especially for light leathers as it contains little coloring matter.

It is cultivated for tanning purposes in Sicily, Spain, Portugal, Italy, and parts of the United States. It is a shrub growing from 4 to 8 feet high, having a reddish-gray bark. To prepare it for market the twigs are gathered while in full foliage, dried in the sun, and then threshed, ground, and the powder packed for the market.

### Primitive Methods of Tanning

The first tanneries were but rude sheds located near forests where tanning materials were plentiful. As the industry developed the tanneries naturally became more specialized and more suitably arranged in every way.

The location of a tannery provided for an elevated place for the piles of bark, a lower level for the mills which ground the bark, a still lower level for the "leachés" in which the bark was changed into tanning liquor, and on the lowest level the tannery proper.

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This arrangement did away with elevators and pumps. A good water supply, forests, and stock districts or ready transportation facilities were also considered.

The primitive method of grinding the bark was by means of a rude millstone weighing perhaps 1,000 pounds. The bark was laid on a round bed of boards. The stone was attached to a shaft, one end of which was fastened to a central post, and the other drawn around the circumference by a horse which moved in a circle hauling the heavy stone over the bark. By this method a ton of bark could be pulverized in a day.

The tanner then threw alternate layers of crushed bark and dehaired hides into a vat made of rough boards sunken in the ground. When the vat was filled with skins and bark, water was allowed to run in, and the hides left to soak for 2 or 3 weeks. By this time the tannin was extracted and the hides were removed and fresh layers of bark supplied. This process was usually repeated 3 or 4 times. The vat was then closed and the contents were allowed to lie for several months. At this rate the tanning was usually started in the fall and completed in the spring, taking perhaps 12 to 15 months for the complete process.

**Modern Methods**

This primitive system was followed until about 1825 when the more modern method was introduced, which

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with improvements is practically the one followed to-day. Both hand and machine processes are used.

American initiative and enterprise have done much to advance the leather trade, particularly in the invention of machinery which can turn out goods in astonishingly large quantities. Some of the Philadelphia houses turn out 2,000 or 3,000 dozen glazed goatskins a day. In fact, American machinery, by which it is now possible to perform almost every operation, is being sold and copied almost all over the world. Of late years a good deal of tanners' machinery has been made in England and on the Continent.

### Tannage of Sole-Leather

The simplest and most typical methods of tanning are those used in the manufacture of sole-leather; the methods of tanning other leathers are mainly variations of these. The principle is to start the green hides in a liquor weak in tannin and finish them in strong liquor. A system at present employed in the manufacture of sole-leather is as follows:

The hides properly cleaned and prepared for tanning are suspended on sticks in weak tanning liquor which comes from other leather which is almost completely tanned. The conversion into leather begins. The hides remain from 10 to 20 days thus suspended, and the strength of the liquor is gradually in-

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creased. At the end of this time they are placed in the " lay-aways " or " layers " where they are laid out flat one by one and a thin layer of ground bark spread over each one. When the vat is full of hides they are covered with tanning liquor. The hides receive about six such lay-aways, each time receiving fresh and stronger liquor and at the end of 6 months they are fully tanned and sufficiently solid for the purpose required.

Light and softer leathers, such as bag, case, trunk strap, upholstery, and harness leathers, are tanned in much the same way except that the tanning liquors used are not so strong and the time of tanning is also reduced to a few weeks.

### Tanning by Machine

When leather is tanned by machine the skins are laid separately on shelves and the machine turns about providing for the constant flow of liquor over them. This arrangement not only prevents one part from taking a deeper stain than another but insures a uniform and complete tannage. In this way many skins may be quickly tanned at one time.

### Striking

Striking always follows the tanning process. This is done while the leather is yet moist to remove the

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yellowish coating known as the "bloom" which appears on the surface of well-tanned leather. It also deepens the natural color of the leather, improves its texture, and lays the grain.

If the striking is done by hand, the moist leather is laid flat on a table and the workman passes a striking pin, a two-handled tool of triangular form with three blunt edges, over the grain side.

Machine striking, because of the rapidity and uniformity of its action has almost superseded the handwork, however. The striking machine consists of a series of blunt knives arranged on a disc controlled by an adjustable foot lever which also regulates the amount of pressure applied. The machine method produces a solid, firm leather.

### Oiling

The skins are next oiled on the grain side. This consists in rubbing them with mineral oil or cod-liver oil to prevent too rapid drying or darkening of the surface.

### Drying

Natural, slow drying produces a better leather than artificial drying. The old drying loft or shed is a large well-ventilated place with openings so arranged as to prevent the direct rays of the sun from falling

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on the skins, as light darkens them. Too much air also will produce a harsh grain. Steam or hot-air pipes facilitate the process in cold or damp weather.

The best machinery for drying is the fan-ventilator type which forces the air by fans over coils of steam pipes.

After drying the leather is ready for the currier, or dresser.

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# Chapter VI

## TANNAGE BY CHEMICALS

### Methods

As stated before there are three methods of tanning by chemical means. These are:

Tawing
Chrome tanning
Formaldehyde tanning

### Tawing

In this method of tanning equal parts of salt and alum are made to combine with the gelatin of the skin fiber. Alum alone makes a stiff and unyielding leather. Tawing was until recently pre-eminently a French industry. It was probably suggested to the Moors by the use of alum or other metallic salts as a preservative. It is of later origin than vegetable tannage, and as practiced today is a combination of pickling and true mineral tannage.

Calfskin, kid, goat, lamb, sheep, and other light skins may be successfully treated by this method producing a leather light in color and weight and soft and pliable



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in texture. Kid leather for the finest gloves and the uppers of ladies shoes are examples of tawed leather. Lambskin is also made by this process into an imitation of kid for cheaper gloves. Tawing is also used when the hair is not to be removed from the skin, as in the case of furs or rugs.

### Process of Tawing

After the usual soaking, liming, and dehairing of the skins, they are soaked in the alum and salt solution. It is essential that the alum be free from iron, an impurity often found with it, which colors the skin. In case the hair is not to be removed the skins may be sponged on the flesh side with an alum solution or packed in dry salt and powdered alum. This latter method is known as dry tannage. In either case the skins are hard, stiff, and empty, and require filling which is done by "egging" or "pasting."

### Egging or Pasting

In this treatment the skins absorb a filling or paste which makes them white, soft, and not so apt to harden as they dry. The filling used may be a paste of flour and egg yolk (one yolk to a skin) mixed with almond, olive, or fish oil, or it may be an emulsion of almond oil, fish, or olive oil with paraffin.

Egg yolk gives softness, fulness, stretch, and glossy

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finish. Olive oil is a partial substitute for egg yolk, but too much oil gives a damp, smeary feeling to leather. Flour is a filling and whitening agent and aids in the emulsifying of olive oil.

The thin paste is worked into the skins in a revolving machine or " tumbler " which throws them about for an hour or more until they have thoroughly absorbed the composition. An additional dressing of tallow soap makes the skins less likely to be affected by water.

**Finishing Processes in Tawing**

The staking and breaking or softening processes follow. The staking process takes off pieces of flesh left on the skins and evens them up. This is done by rubbing the skins across the edge of a dull, semicircular knife set on the top of a wooden form. The process is continued in the breaking machine. The skins are stretched and worked and the fibers pulled in every direction until soft and of uniform texture. During this process the skins are sometimes moistened and rolled in wet bran or sawdust which leaves them soft and white. They are then taken to the drying room. They age or mature if dried naturally for several weeks or months and a superior quality of leather results, as it allows the alum to become firmly fixed in the fiber and the tannage is more thorough.

Before dyeing, the skins are again washed in tepid

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water to remove the flour and surplus alum and salt, which if left in would tend to make them hard and also affect the coloring matter. Sometimes skins are "re-egged" or again treated to an egg dressing, when the nourishing material has been partially washed out.

French glazed kids are sometimes brushed with an infusion of vegetable tannin after tawing. This treatment combines the desirable qualities of both the mineral and vegetable tannage. The first gives a softness and toughness as the fibers are well separated and so stretch, but lack firmness and solidity; the second gives the desirable plumpness, fulness, and resistance to water. Skins subjected to combined tannage are likely to have more of the characteristics of the first tannage applied.

**Disadvantages of Tawing**

Inasmuch as in tawing no real chemical reaction takes place the gelatin is not wholly impervious to water. In washing, the three elements, gelatin, alum, and salt can be separated by the water, so that alum-tanned skins though soft and white are little resistant to water unless given special oil treatment similar to chamoying. This tends to make them water-resistant though not water-proof.

**Chrome Tanning**

Chrome tannage is the method of changing the fibers

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of the skin into leather by means of a compound of chromium. It is a short, inexpensive, and easily controlled process.

**Characteristics of Chrome-Tanned Leather**

Chrome tannage produces an extremely soft, light, non-absorbent, durable leather of close texture. The combination of the chemical with the fiber seems more stable than that of the tannin, so that it is less easily affected by physical agents. It also has much tensile strength as compared with vegetable-tanned leather, and so is especially valuable for straps, beltings, etc. It is not affected by boiling water, while vegetable-tanned leather becomes hard and shrinks in hot water. It is especially successful for light, and washable leathers. Two-thirds of the glazed kid made in the United States is chrome-tanned.

**Process of Chrome Tanning**

In general two methods are followed: the one-bath for heavier leathers and the two-bath for lighter skins, such as goat and sheep.

The cleansing, liming, dehairing, fleshing, rounding, and raising are done in the usual way. The skins are then put into the chrome-bath, which is prepared by dissolving bichromate of potash in boiling water, acidified by hydrochloric acid and reduced with sodium

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hyposulphite. Owing to the green color of the chromic compound which is formed, the skins come out a blueish-green color. The process must be carefully watched lest the too rapid action of the acid weaken the leather, thereby giving it a dry and lifeless texture.

If an extremely soft leather is desired the skins may be "pickled" before chroming. This process is much used in the case of split sheepskins to preserve them until tannage. The skin is swollen in an acid or alum and reduced by salt, which preserves it for many months. Large quantities of hides from New Zealand, known as pickled splits, are imported in this state. The danger is that if the tanning is done too soon after removing the salt, the leather tears easily. A pickled skin is always more soft and porous after tannage than an unpickled.

**History of Chrome Tanning**

The chrome process though discovered as early as 1856 by a German named Knapp, was not developed until 1884 when August Schultz, a Philadelphia dyer's chemist, conceived the idea of applying the process of mordanting wool by a bichromate process to the manufacture of leather. Philadelphia is today renowned for its chrome-tanned glazed kid, known as vici, and for its enamel and patent leathers.

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**Formaldehyde Tanning**

Formaldehyde tannage is one of the modern methods used today. It is completed in from 3 to 6 hours for light goods and from 12 to 48 for heavy. It produces a hard firm leather suitable for soles, for which it is largely used.

Washable leathers are successfully prepared by this method of tannage since the action of slightly alkaline solutions of formaldehyde on raw hide produces a buff or white leather similar to an oil leather. Bleached on the surface, it imitates the genuine tawed skin. Unless the formaldehyde is entirely removed the goods soon become brittle and tender.

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# Chapter VII

## CHAMOYING

### Definition

Chamoying is the use of fats in converting skins into leather. It took its name from the primitive method of tanning the chamois or deer skin. It is an old method of preserving leather which is still used by savages who rub oil or greasy substances into skins to preserve them. It is similar to the treatment given to the flesh side of furs.

### Use

Chamoying produces a soft, pliable leather, particularly adapted for leathers to be finished in natural or light colors, and wash leathers. The result is very similar to that of tawing though the processes are entirely different in chemical reaction.

### Preparation of the Skins

After the skins have been cleansed, limed for several days, and dehaired by the ordinary processes, they are often given a special liming to plump them. This



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makes it possible to split them more satisfactorily. Some skins are bran drenched, soaked in bran liquor, to remove the lime. After this they are converted into leather as follows:

**Stocking or Milling**

Each skin is sprinkled on each side with oil, usually a pure cod, seal, or whale oil. It is then thrown into a revolving machine which moves the skins about gently for three or four hours. In this machine the skins become very warm as the oil acting on the skin fiber produces oxidation. During this process the skins not only become thoroughly and evenly saturated with the oil, but are reduced to a uniform texture. After a time, they have a soapy, slimy feeling. While in this heated condition they are thrown into bins and covered with sacking or packed in tight boxes (100° to 160° F) in order to retain the heat. In this stage they must be carefully attended lest the temperature become too high and injure the skin. They are either turned often or taken from one bin to another. A sufficient number of skins must be kept together, however, to keep up the process of heating lest certain parts remain green or not chamoyed. The skins in this stage become a yellow or dark brown color and leathered in which condition they are known as "crust" chamois.

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**Washing and Pressing**

After complete oxidation the skins are thrown into vats or machines filled with water heated at first to 110° F and gradually raised to 130° or 140° F. Here the excess of oil is washed and pressed out by a hydraulic press. The degras or sod oil so largely used in stuffing leathers is the superfluous oil recovered from the water in which the chamoyed skins are cleansed at this time. Several stockings and washings may be given to increase pliability. Instead of oiling in the fulling mill the French oil the skins by sprinkling and fold them in bundles.

The staking and breaking processes follow. The skins are evened up and stretched to make them of uniform texture.

**Fat-Liquoring**

The skins are now dampened again in warm water and nourished with a stuffing compound of cod-oil and soap and finally wrung by a machine. The French use seal and whale oil instead of cod.

After this process the skins are dried and carefully run over an emery wheel which produces a fine, smooth surface. This is called "fluffing."

**Bleaching**

To produce fine colors as for suede, and fancy leath-

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ers, all chamoyed skins must first be bleached. They are dampened in a solution of soapy water and put in the sunshine. In the summer two or three days may be sufficient for bleaching but in winter it may take several weeks. The so-called doe skin gloves are often bleached chamois.

After bleaching, the skins are immersed in a vat of boiling soapy water for two or three seconds, stretched and manipulated by hand and machinery, to soften them, taken to a drying room of about 120° F and allowed to dry naturally. After this they are again staked and run over the emery wheel.

**Tanning by Electricity**

Tanning by electricity is still in the experimental stage. The skins are dehaired by the lime process and then acted upon in the tan vats or machine by currents of electricity. The skins are suspended in water in the vats or tanks where they soak for 3 or 4 days. The tanning liquor is then added from time to time until the fiber is changed into leather. The advantage of this method of tanning is that the electric current equally distributed through the whole tanning solution forces the tanning acids into the leather, thus producing in a short time a thoroughly tanned leather.

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# Chapter VIII

## CURRYING OR DRESSING

### Definition

The tanned skins must be dressed or finished before being made up into leather goods. This process is known as currying and has always been a highly specialized branch of the leather industry.

It is largely a mechanical operation of cleansing, reducing in thickness, and softening the tanned skin or leather. Whatever chemical change takes place is due to the reaction of the oils and fats worked into the skin during the process. Much that was formerly done by delicate and tedious hand methods is today done by ingeniously designed machinery.

### Purpose

The purpose of currying is to soften the leather, render it more pliable and water-proof, and improve its appearance. This is accomplished by further manipulation of the skin, by treating it with suitable dressings, and by either bringing out the natural grain of the skin or giving it an artificial grain.



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Well-curried leather is smooth, pliant, supple, and of pleasing color, luster, and grain. All leathers tanned by the ordinary vegetable or chemical tannage must be curried to give them their texture and finish.

**Shaving**

The skins, known as rough leather, are dipped into water to soften them and are then shaved or split, scoured, beaten, and stretched into uniform thickness and even surface. Sometimes the shaving is still done by the currier's knife and other hand tools, but machines have now been invented which can in many cases take their place.

The currier's knife consists of a fine steel blade set in two plates of iron. One of the two handles is set horizontally, the other vertically, with the blade. The blade is made of finely tempered steel, the edge of which must be very sharp. The workman pares off thin shavings from the skin with this knife. The operation is known as hand-shaving and its object is to thin, smooth, and even up the skin.

Other hand tools used by the currier are: slickers, shaving knives, and arm-boards.

If the shaving is done by machine the dampened leather is passed under a rapidly revolving cylinder to which a series of steel knives is attached. These are kept automatically sharpened by emery wheels. The

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leather pushed up to the knives by a foot lever is shaved to any desired degree of thickness by a screw arrangement which regulates the distance between the knives and the cylinder.

Chrome-tanned leather on account of its loose texture is particularly difficult to shave by hand, so that the shaving process is done by machine.

**Splitting**

Leather is now split by the splitting machine. This machine cuts skins into two, three, or even more layers by means of a long, keen, vibrating knife-edge cleverly regulated by a gage which may be set to cut any desired thickness. As leather is elastic the workman in charge of this splitting machine must be expert in controlling the action of the knife, lest the hide draw away from it, making the layers uneven. Different parts of the hide are of different thickness and not equally soft or firm so that he must adjust the top screws of the machine to cut the thick part under more pressure than the thin. To avoid loss it is most essential that the splitter should be one of the most skilful workmen. The layers of leather produced by this process are called "splits."

Previous to the invention of the splitting machine (1860) a shaving method was followed which was not only laborious but wasteful.

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Small skins are dressed whole, but sheep, goat, cow, and horsehides are usually split for use in shoe, bag, or glove leathers. For sole leather the whole thickness is used. Soda, in the form of sodium carbonate, is sometimes added to the lime in the dehairing process of skins to be split. This causes an extreme degree of swelling which facilitates the splitting of the skin.

Splits are naturally coarser in texture than whole skins but they are strong, durable when well prepared, and much cheaper. They may be finished in many ways by means of artificial graining. Bag leathers are sometimes made of split hides. The cheaper grades of suitcases are covered with tanned sheepskin or with the inferior parts of split hides.

### Scouring

In this process the skins are wet in warm soapy water and stone slickers and brushes are worked over the surface of the leather both on the grain and the flesh side. These remove the bloom, loose tan, and dirt, and smooth the surface.

### Stuffing

The dressing or stuffing is next applied to soften and feed the skin which has been deprived of its natural material. This gives life and fulness to the leather and makes it capable of taking and holding the finish.

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Grease or oil mixed with other materials and known as fat-liquor is worked into the skin, usually from the grain or hair-side as this side takes it best.

**Dressings or Fat-Liquors**

The dressings used in stuffing are composed in general of:

Oils, which restore the natural fat destroyed by tanning materials.

Waxes, which combine with the oils with waterproofing effect, and also give the desired deep, clean, lustrous appearance.

Soaps.

Varnishes.

Glues.

These dressings are combined in proportions suitable to the kind of leather to be dressed and to the effect desired. The formula by which the various dressings are made used to be among the sacred trade secrets. However, as the knowledge of chemistry and its application to the preparation of leather becomes more widespread, this has become general intelligence. The mixture of all pastes, polishes, and dressings for leather is closely connected with the mixture of the dressings or fat-liquors, as the principles are the same. Whatever makes a good dressing for the leather in its preparation is likely to make the proper dressing to keep

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finished leather goods in good condition and attractive in appearance.

The following are some of the materials used in fat-liquors and dressings. These are also the bases of good polishes and pastes.

**Animal Oils**

Cod-liver oil is prepared from the livers of cod fish chiefly from Norway, Newfoundland, and Scotland. Those from Newfoundland are of the best quality. The crude oil used by tanners is obtained from partly decayed livers and therefore has a strong and unpleasant smell. Rosin and mineral oils used as adulterants of cod-liver oil contain matter which is injurious to leather.

Seal oil and whale oil are good substitutes for cod-liver oil, but give a paler yellow color.

Fish oils are obtained from various kinds of fish. These tend to dry the leather, as they contain a large quantity of fatty acids which absorb oxygen and form a hard coating on the fiber.

Neat's-foot oil is prepared from the feet of cattle and other animals. Tallow and wool fat are also used.

Degras, the excess of oil recovered from the chamoying process, is highly prized for the finer leathers. It is mixed with tallow, wool fat, and other materials. It contains 25 per cent water. A coarse form of de-

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gras is known as sod oil. So great is the demand for degras that its manufacture is now a specialized branch of the leather industry.

Egg yolk, which contains animal oil, is also used.

### Other Oils

The vegetable oils used are castor oil from the castor bean, linseed oil from the flax seed, particularly valuable for japanned or patent leathers, and olive oil.

Vaseline and glycerin are also used.

### Waxes

The waxes used in dressings are beeswax, paraffin, and carnauba wax, which is used especially for brown leather dressings.

### Soaps

Soaps are used for the fatty acids they contain. The acids should constitute at least 65 per cent of the soap. Soaps used for dressings should contain no free alkali.

### Varnishes

Varnishes which are used for water-proof or enameled and glazed goods, are animal fats or vegetable fats, as linseed or other oils, combined with gum arabic, resin, or shellac, to give the desired gloss and hard finish.

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### Glue

Glue made from the skin and bones of animals is used to restore the gelatin removed by tanning and to fill the coarse open grains. When mixed with an oil and a gum it makes a good dressing for calf, seal, and other dull leathers.

### Fillers

The fillers or materials used to fill the pores and give body may be talc, china clay, or starch. The coloring matters may be lampblack, yellow ocher, and aniline dyes.

### Hand-Stuffing

Hand-stuffing is the process by which the workman rubs the dressing in by hand with a stuffing cloth, brush, or glove. Rapid drying or extreme heat hinders the stuffing from thoroughly penetrating the skin. In summer it may take only 24 hours, but in winter 2 or 3 days according to the weather. The slower process of stuffing by hand makes a leather superior to that stuffed more rapidly by machinery.

### Drum-Stuffing

Drum-stuffing is done by a revolving circular machine which looks like a drum. It is covered on the

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inside with wooden pins that catch the skins with which it is filled, lift them out of the warm fat liquid, and drop them back into it again time after time. In this way the leather is evenly stuffed.

The skins are put into the machine wet. The machine is then heated to 100° F. The amount of heat applied must be most carefully regulated, lest the leather be injured. When the leather is warm the fat-liquor is introduced through the hollow axle and the two are rotated together for an hour or so until all the liquid grease is absorbed.

Drum-stuffing is used for cheaper leathers. It is not only more rapid than hand-stuffing but forces more of the fats into the leather. Some drum-stuffed goods it is said, contain 50 per cent of grease, while only 10 per cent of grease is absorbed in the hand-stuffing process.

The stuffing or fat-liquoring process is of vital importance for the satisfactory finishing of chrome-tanned leathers as this method of tannage tends to make a leather less solid and firm than the bark tanned. This shows particularly in skins which are of loose texture or which have been swollen too much by the liming process.

### Drying

In drying, the texture of the skins must be consid-

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ered. A slow, natural heat is essential to strong, durable, and beautiful leather. The leather is now said to be " in the russet " and is full, plump, and soft, ready for the finishing processes.

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# Chapter IX

## DYEING

### General Principles

In the dyeing of leathers the same principles apply as in the dyeing of textiles made from animal fiber, and it is very similar to the dying of silk and wool.

The skins must be free from impurities and should be kept in motion during the dyeing process so that the dye liquor will permeate every portion of the skin thoroughly and evenly. The temperature of the dye liquor is most important and must be skilfully regulated, lest the heat weaken the animal fiber.

In selecting the dyes the method of tannage must be considered as the same dye will produce entirely different effects on vegetable-tanned and chemically tanned skins. In tawed or chamoyed leather there is great uncertainty. The kind of skin and its texture also influences the color and the method of finishing the leather may change it.

It is advisable never to put the skins into dye liquor of full strength. The animal fiber has a great affinity for color, and absorbs so readily that it may take a



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deeper color than is desired, therefore the skins put in first will come out much more deeply colored than those put in last. For this reason a series of baths is given or else the dye is constantly added to the bath as the skins absorb the color. Every part of a skin should come in contact with the dye liquor at one plunge lest the portions first introduced be more deeply colored than others.

In order to give satisfactory results the skins must be well tanned and free from defects. One of the imperfections most frequently seen in colored leathers is a shady, mottled, or streaked effect due to carelessness in liming. A skin which has been soaked too long is spongy in spots, thus noticeably affecting the action of the dye in these spots.

### Water

Pure water is most necessary in dyeing leathers, since impurities of any kind not only injure the skins but often react with the coloring matters to produce a color entirely different from the one desired. The tanner must consider whether the water is hard or soft, what its impurities are and their influence on his leather, and he must understand the method by which it can be made pure enough for use. Hard water containing lime or magnesium react with the lime in liming and with the soaps used in dressings and so must be

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softened by a chemical which will precipitate these salts. Mineral matters such as iron combine with the tannin to make insoluble materials or give an undesirable color effect which often appears as stains in leather. Impurities such as soot and particles of vegetable matter must be filtered out as they not only make spots on the leather, but hinder the action of the dye materials. Pure rain water is the best, river water second. Well water is undesirable.

**Methods**

Two methods of dyeing leather are commonly used, bath or plunging, and flat surface dyeing or staining. In the former the whole skin is colored and in the latter usually the grain side only.

**Bath Dyeing**

Many skins may be dyed at one time by the dyeing machine or drum method. This machine has facilities for letting the liquor run in at the proper time and for running it off in any position and also for keeping the dye solutions at the proper temperature 120° to 130°. The dye penetrates better and is laid more evenly if the dye bath is not too hot. The drum machine method thoroughly penetrates the goods with the dye liquor which gives even shades. Sample skins are taken out from time to time and the liquid is pressed

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out, so that the exact color may be determined. They are then again immersed in the bath which has fresh coloring matter added to it until the desired shade is obtained. It usually takes from ½ to ¾ of an hour to dye skins, dependent upon the size of the skin and color.

When the skin has taken the desired color it is rinsed, smoothed and nailed on a board or stretched by other suitable means to dry. The temperature of the drying room must be well regulated if the heat is produced by artificial means. Dyed leather is dried rather quickly so that the dye may not sink in or the air oxidize the color and change its shade. Bath dyeing may also be done in trays or vats in which the skins are moved about by hand in the dye liquor for about half an hour.

**Flat Surface Dyeing**

Flat surface dyeing is an old method but still followed particularly in the Cordovan or tougher leathers. Tawed leather and glove leathers are also often brush dyed as an immersion in dye liquor would involve loss of alum.

The damp skin is stretched on a table or board and first brushed with a mordant and medium soft brush. This is followed by several brush applications of the

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dye stuff. Excess of color is washed off and each skin, when dyed to the desired color, is rinsed, smoothed, and stretched to dry. A sizing of linseed jelly or gelatin is sometimes applied to prevent too deep penetration of the stain and to fill up the pores of defective leather. There are in use machines in which the dye liquor is put on by a revolving brush. To avoid dyeing both sides, skins are sometimes paired or "pleated" and the outside of each brushed.

In staining leathers only the flesh side is subjected to the dye. The stain is not rinsed off as the object is to penetrate the fibers deeply and give the leather a well-nourished look.

Mixing the dyes with the stuffing or seasoning may also be considered a form of flat surface dyeing.

After dyeing and drying the skins must again be softened by manipulation and dressings. They are then finished according to the desired purpose, which, whether graining, sueding or glacéing, brings out the color effect.

**Dyeing of Chrome-Tanned Leather**

Because of its compact fibers chrome-tanned leather is dyed with difficulty.

The skins are sorted in the "blue." Sometimes they are dyed before the fat-liquoring. They may be

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dyed any color before drying, but when once dried cannot be colored satisfactorily as they soon become impervious to moisture.

### Dyeing of Chamoyed Leather

Chamoyed leather because of its water-resistant quality is difficult to dye. The skins are carefully divided for black and colored goods, only the finest and nearly perfect grain skins being suitable for fancy colors. Sometimes the skins are given a wash of color after the regular dyeing.

### Kinds of Dyes

Before the introduction of coal tar dyes [1] the currier had a limited and uncertain range of coloring materials to select from, being dependent upon dye woods and animal coloring matter for his colors. By the aid of these, however, he produced colored leather that was attractive, good, and durable. Today he uses three kinds: (1) aniline or coal tar dyes, (2) the old natural dyes, animal dyes such as cochineal, and vegetable dyes such as indigo, logwood, or madder, and (3) mineral dyes as iron or copperas.

1 Coal tar dyes are manufactured from coal tar which is one of the by-products of the coke oven. In 1906 (fifty years after their discovery) 62,000 different varieties and colors of aniline dyes were in existence. They have almost entirely replaced the old natural dyes such as indigo. In Germany the government fostered the industry and practically controlled it until the present war. A few plants were in existence in New Jersey and New England at that time. The war has given great impetus to a development of the industry in this country.

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**Aniline Dyes**

Aniline dyes, though often uncertain in result and in some cases not satisfactorily resistant to fading, are especially adapted to the dyeing of leather. As the animal tissue readily absorbs and fixes them, no special mordant or fixing solution is necessary, the tannic acid in the leather being a mordant in itself. Their brilliancy, cheapness, and the great variety of shades they produce make them doubly attractive so that practically they have almost displaced the more difficult, tedious and uncertain natural dyes.

**Natural Dyes**

The natural dyestuffs still find a place in leather dyeing and staining because they give a more durable though less brilliant color than the artificial dyes. Logwood, Brazilwood, fustic, sumac, and cochineal are the principal ones still in use. Catechu or cutch is valuable as it contains both tannin and coloring matter. They are often used in the form of crystallized extracts. Brazilwood gives beautiful and durable yellows, reds, and browns. Cochineal makes a bronze effect.

The natural dyes are always used as a grounding for color in tawed leather as in this case it is impossible to get a suitable depth of color by tar dyes only. Wood dyes are not so easily affected by dirt and soil

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and so for this reason are valuable for gloves and pocketbooks.

**Bronzed Leather**

Both basic and acid dyes applied in strong solution frequently show when dry a metallic luster or bronze effect due to the formation of small bright colored crystals where the surface reflects the light. This effect however is not fast to rubbing or dampness unless made more permanent by a coat of lacquer or varnish.

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# Chapter X

## QUALITIES OF GOOD LEATHER

### Good Leather

The quality of leather depends upon the thickness, strength, and flexibility of the fiber of the animal skin, upon its careful and scientific tannage, and upon thorough and suitable currying or dressing. In judging a piece of leather we consider its durability or resistance to water and wear. This is largely dependant upon its texture as finished leather. Good leather is firm but soft and pliable, of a clear and even color, and fine finish.

### Texture

The old tanner tested his leathers by making a cut in the thickest part of the skin. If a spongy and loose texture or shaded color was apparent, it indicated an inferior skin or incomplete and inferior tannage.

Leather should be compact and uniform in thickness and color. It should be of a homogeneous substance throughout, that is, entirely free from unchanged gelatin or living animal tissue, which shows



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that the tanning is complete. A spongy and loose texture shows in blotches of color and uneven texture because the leather wears out in these places indicating an inferior skin or inferior tannage. Horny leather is a skin having dry and hard parts due to imperfect tannage, or to a lack of softening in the currying process.

Some finished skins show minute pin holes where the tanning liquor failed to tan them thoroughly. These places are affected by water. Other skins contain many thin places due to careless use of the knives or machines in fleshing.

### Durability

The strength and durability of leather depends upon its texture and flexibility. Some leathers are naturally more flexible than others, depending upon the texture of the living animal fiber. But all properly tanned and dressed leather will have a reasonable amount of stretch which it will retain with proper use and care. Sole-leather is an exception to this general rule, the special treatment that is given to it making it very close in grain, compact, and only slightly elastic.

### Softness

The lighter leathers especially should be soft and flexible, though firm and strong. The currying of

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leather brings out its characteristics of flexibility by dressing and manipulations which also restore the natural softness of the skin.

**Resistance to Water**

Animal tissue well-tanned and dressed with oils will shed the water. A method of determining the quality of leather is to drop water on the hair side of a tanned skin. If the drop of water does not soak into the leather it is said to be well tanned. If, however, the leather absorbs the water it is said to be poorly tanned. Damp leather is apt to be affected by the air and will deteriorate in quality. For this reason it should be made water-resistant and kept so by oiling.

**Finish**

The grain and luster of leather is its chief beauty. The natural grain should stand out prominently after the processes of dressing and finishing.

**Color**

Color in leather may be natural as the result of the vegetable coloring matters of the tanning liquor, but in most cases it is produced by dyeing or staining. The variety of colors which leather will take effectively is almost unlimited.

The color should be full, deep, rich, and beautiful,

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whether a subdued luster as in the case of a dull gun-metal, a glassy reflection of the light, as in enameled and patent leather, or the soft velvety shades of the suede or glacé finish.

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# Chapter XI

## SUBSTITUTE LEATHER

### Varieties

Substitute or imitation leather may be artificial leather, or real leather stamped with an artificial grain in imitation of a natural skin. What is called pigskin is often embossed sheepskin, which also masquerades as alligator, sharkskin, lizard, and other leathers used in fancy goods. Glazed kid is also imitated in sheep and goat.

Some substitute leather contains no leather at all, as the textile back proves, or it may be a combination of ground leather and other ingredients. Pocketbooks, hand-bags, and leather novelties in the cheaper grades are made from such substitutes for real leather, as are suitcases and traveling bags.

### Reasons for Large Amount of Substitute Leather

In the United States, which draws upon the whole world for its supply of raw materials for leather, the number of hides and skins used increased 16 per cent between 1899 and 1909 and their cost increased 59



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per cent. In this as in the case of other commodities the demand for the finished product often exceeds the supply as the standards of living rise. Nations which have heretofore worn wooden shoes now want leather ones and the manufacturer cannot produce on a scale large enough to provide them. Kid gloves must be supplemented by fabrics as the relative supply of animals decreases because of the fact that some of the animals are becoming scarce and the demand is increasing.

For this reason substitutes for leather should be encouraged and welcomed, if they are labeled as such.

Imitations in leather may be divided into two classes, those which contain leather in their composition, and those which do not.

### Imitations Containing Leather

In this class are those made from refuse leather fleshings, etc., reduced to pulp, molded, pressed into shape, and water-proofed by mixtures containing india rubber, glue, starch, wax, and similar materials. To this mixture may be added chips of paper, rags, and oak bark, to give a natural color, and beeswax to give flexibility.

### Leather-Board

Leather-board is the best representative of this class.

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It is used largely for heels, counters, and inner soles in shoe manufacture. It is almost impossible to find a factory where it is not used. It was first made in New England. Its use came about because of the desire to reduce the cost of the shoe by using it for those sections where it could be substituted for large pieces of strong leather. Its use became so general that not enough skivings, leather shavings, could be obtained to make it. New mills were established to produce it and the quality was improved as manufacturers learned how to handle the fiber and how to utilize its chemical possibilities. The New England mills still produce the best quality. Much power is necessary, so leather-board mills are situated where water power is available. Skivings and sole-leather waste are now used.

These are first reduced to a pulp in large beating machines. The pulp is then dried in sheets on machines similar to paper drying machines and the sheets rolled and finished. All gritty material which would injure the cutting wheels must be kept out. Leather-board is made in a variety of thicknesses from one-fourth to less than one-sixteenth of an inch and is sold in bundles of sheets.

**Imitations Containing No Leather**

Imitation leathers are textiles coated with gelatinous compounds containing resins and treated with tannin

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or aluminum acetate to make the coating insoluble in water.

Leatheroid is a combination of chemically treated paper, rubber, and other ingredients pressed into heavy sheets and used for trunks and suitcases.

Leatherine is calico treated with rubber or rubber substitute to give the effect of leather.

Another artificial leather is made from pyroxylin combined with wool or lanolin and applied by a machine to a textile. Several coats are applied and made compact by friction calendering. The various grains are embossed upon it with good effect, and dyeing produces the desired colors. To increase the wearing qualities and the gloss, artificial leather is often varnished after embossing. Some of it is hand-decorated. Much of the so-called antique or mission leather is of this type and also the so-called chamois leather used for underwear. Sole, patent, and split leathers are imitated in pyroxylin leather.

Another artificial leather is made of glue, 16 parts; rape oil, 4 parts; water, 16 parts; glycerin, 8 parts; boiled linseed oil, 18 parts. This mixture is dried into tough sheets, treated with tannin, pressed, and dried. (See Figure 2.)

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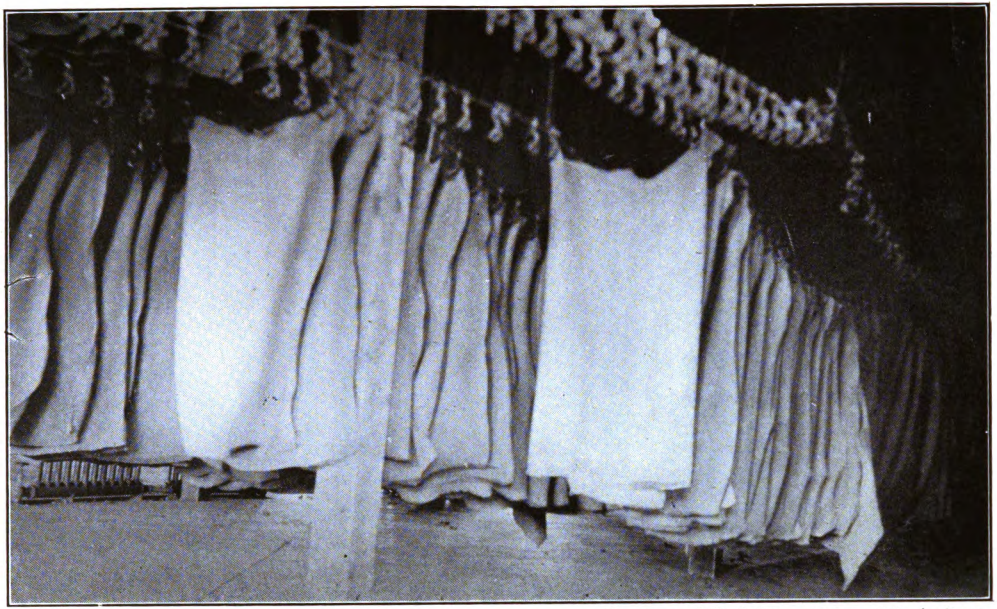

Courtesy of U. S. Department of Agriculture

Figure 2. Fiber Board

**(Loft Drying Previous to Calendering)**

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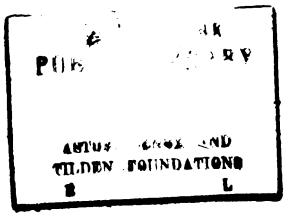


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## Chapter XII

### PREPARATION OF LEATHER FOR BAGS

**Kinds of Leather Used**

The skins used for traveling bags and suitcases are:

Cowhide
Pigskin
Horsehide or Coltskin
Goat
Seal
Walrus
Alligator
Crocodile
Sheepskin

The leather in cowhide bags is usually called sole-leather though bags are made of split hides, while soles are made of the whole skin. The process of tanning is also different as bag leather should be more pliable and elastic.

The bag manufacturer buys his leather tanned but not finished in order that he may better adapt it to his purpose.



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**Colors**

Cowhide and pigskin are often used in the natural color, only darkened by the dressing, or they may be dyed black with the brush.

Seal and walrus are dyed black. Alligator and crocodile are left in their natural colors of brown and tan, or dyed dark brown or black.

The dyeing of bag leathers is done with a brush as the skins are spread on a table.

**Finishing Processes**

The finishing processes for leather are those which produce the various kinds of grain or surface. For bag leather they consist of:

Graining
Boarding
Glossing or glazing
Embossing
Fluffing
Buffing
Enameling
Waxing
Satin or gloss finishing

**Graining**

The leather is shaved to the required thickness on a skiving machine which also makes it soft and pliable.

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It is then grained or embossed. Walrus skins are shrunk by a process which gives an irregular and more natural grain.

Graining or boarding is done by folding the skin inside out and creasing it by pressure with a cork covered pommel called an arm-board. According to the way in which the creases are made the leather will show a long grain, criss-cross, or pebbled surface. Graining may only deepen and bring out the natural grain of the skin, or may give an artificial grain to imitate more costly leathers. Seal grain leather is a goatskin, sheep, or split leather grained or embossed to look like seal. This is also known as Levant. Box calf is a common form of grained leather. It is a chrome-tanned calf with a checkered pattern of fine creases on it. (See Figure 1 for the natural grains of representative heavy leathers.)

**Boarding**

Boarding is a process similar to graining which gives a pebbled effect. This process at the same time softens and brightens the leather. Boarded leather may also be a leather whose surface is faintly lined by undulations stamped upon it. Boarded cowhide makes an effective bag leather.

**Glossing or Glazing**

Glossing or glazing is bringing out a smooth or

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glazed appearance on leather. There are many varieties of machines used but one of the most common consists of an arm with pendulum motion which swings from a long pole attached to the ceiling. The glazing tool on the bottom of the arm is a cylinder of glass or hard wood. The leather is placed under this rapidly moving cylinder and in time it takes on a high polish or gloss due to friction. This should not be confused with the hard, bright surface of the enamel or patent finish. The machine must be regulated so that the heat produced by the friction does not become too intense.

**Embossing**

Embossing or stamping is done by machines with rollers upon which the various types of grain are cut. The leather is put in these machines and stamped with the desired graining. Cowhide, pigskin, and horsehide or coltskin are usually grained. Seal and walrus are embossed to bring out the natural marking or what these are supposed to be. Split leather and goatskin are often embossed in imitation of seal or walrus.

Much imitation leather is produced in this way. After the grain is raised by boarding a coating of celluloid varnish is sometimes applied to aid in bringing out the imitation grain or pattern stamped on it. A good split calfskin or sheepskin prepared in this way makes

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a fairly durable, water-proof, and cheap leather.

Embossing leather dates back to a very early period. The Egyptians practiced it nearly 3,000 years ago. About the thirteenth century it was practiced in Italy, Spain, and England. It is today used to finish leathers for bookbinding, bags, purses, and fancy articles. Sheepskin is embossed to imitate Morocco, seal, or alligator, cowhide to imitate pigskin, etc.

Embossing machines in which electrotyped copper rollers and plates imitate the patterns of real skins can now be obtained by the manufacturer. Some of the most delicate and beautiful markings are reproduced with perfect fidelity. This electrotype process is rapidly becoming a highly specialized branch of leather manufacture, making it possible to have excellent imitations of natural skins at far less cost.

Alligator and crocodile do not need to be grained or embossed, as they have a scaly surface divided into small sections by deep cuts or depressions. Splits may be embossed to imitate alligator but the imitation can be detected by examining the edges of the scales. If these seem slightly undercut as if one might raise them with a knife the leather is genuine. Pearl alligator is a horny variety made from the tail of the animal.

**Fluffing**

Fluffing is subjecting the flesh side of the skins to

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the action of a rapidly revolving emery wheel which smooths the flesh side, levels the skin, removes the marks of bad shaving, and raises a fine nap. There are fine and coarse emery wheels suitable for fine and coarse leathers.

**Buffing**

Leathers finished on the grain side sometimes have a thin film of grain scoured off by a process known as buffing. The grain side is dampened with a soap solution and thin shavings are taken off. The buffing machine manipulates a cylinder roll with very sharp knife blades which perform this delicate operation. Mocha glove leather is prepared by a similar process. Split side leathers are often dressed in this way.

Buffing is often resorted to when skins have defects such as barbwire scratches on the surface.

**Enameled Leather**

Patent, enameled, or japanned leather is used for bags and suitcases, hand-bags, purses, belts, and novelties. It may be either kid, calf, horse, colt, or seal, finished with a bright varnished and water-proof surface. The term enameled is usually applied to leathers with a shiny finish on the grain side, and patent or japanned to those finished on the flesh side or to split

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leather given this finish. It may be in colors though generally it is black. Enameled leather is usually grained or boarded.

Large, thin, firm hides, dry-tanned are generally used. When dry, after tannage, they are tacked on frames and grounded with a mixture of linseed oil, white lead, and litharge, a glazing material, boiled together and thickened with chalk and ocher. Successive coats made of vegetable oils and gums are then applied, each coat being thoroughly dried and worked into the fiber before the next is given. The last coat is applied with a brush and the leather baked for three days in an oven at low temperature, and finally exposed to the sunlight which oxidizes the varnish and gives the finish.

Patent leather, even though made of good and reputable stock, is liable to crack with wear. When the leather expands the coating of varnish is not correspondingly elastic, although recently-invented varnish coatings are noticeably more pliant.

Splits to be enameled receive a dressing of linseed oil boiled to a jelly and thinned with turpentine or naphtha which forms a sort of artificial grain. The skins are stretched on frames while damp to prevent the dressing from penetrating the leather too deeply. Skins for this finish must be well softened but not subjected

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to much smoothing. The number of coatings varies with the kind of skin and purpose for which it is to be used.

The Germans and French have made more of this branch of currying than the English. The United States uses it for ox hides. Patent leather was made in the United States as early as 1818 but only recently has attained its present excellence, rivaling the French and German in finish.

**Waxed Leathers**

Wax leathers, used for bags and suitcases, are leathers finished black on the flesh side. They are usually made from the butts which as a rule are the only parts sufficiently compact in fiber to make waxed leather. Heavy calf is often given the wax finish.

Each currier has his own ideas as to the best methods to produce a good and deep black on leather. Some use a weak paint made of cod oil and lampblack, others put the black dye into a soap solution. There is no danger of deepening the color in the latter method as is sometimes the case with the oil color. In either case it is applied by hand or brush and well rubbed in after a top and bottom size of glue, flour, or soap. The skins are hung up to dry and finally glassed and oiled with warm cod oil. Properly waxed leather should

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improve with age. Black grains are kip shoulders dressed and blacked on the grain side.

**Satin or Glove Leathers**

Satin or glove leathers are finished on the grain side. "Glove-shoe" leather usually means a split or a leather which has had the grain removed and then has been given a satin finish. Splits are said to wear better as the grain surface naturally becomes hard and cracks under the finish. After buffing (or removing the grain) the leather is blacked with a logwood solution and sized as in waxed leathers. It is then dried out, softened, glassed or pebbled, and finally oiled with cod oil and stored in the store room to age. Extreme care must be taken to avoid marks of any kind during the process.

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# Chapter XIII

## MANUFACTURE OF TRAVELING BAGS AND SUITCASES

### Varieties of Traveling Bags

Traveling bags are of many styles and sizes to suit the needs of many kinds of travelers. There are bags for men and women, for those whose trip is to be a long one, and those who may be going away over a night or a week-end, for those whose tastes are simple, and for those who travel in luxury.

### Styles

The names given to traveling bags may designate their purpose and special features or may merely refer to the shape of the bag. Standard bags of different shapes are now given the following names:

Madison, with full round ends.
Victoria, a flatter bag, ends folding inwards.
Balmoral, a modified Victoria.
Windsor, with lower part of bag boxed, square ends.
Washington, a modified Windsor, with a welt in the middle of the ends. (See Figure 3.)



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Figure 3. Traveling Bag of Seal

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Leamington, a modified Windsor.

Bags may have more marked characteristics.

The *kit bag* is intended for hard usage, made of soft hide or pigskin, soft and pliable and often made so that it can be folded flat, to save space in traveling.

The *collapsible bag* is similar to the kit, but may be made of thinner leathers.

The *Gladstone bag* is not unlike a suitcase in shape, but is deeper in proportion to its length and has a pasteboard piece for holding shirts fastened over one side. It opens flat and is a good sort for men's use. (See Figure 4.)

The *cabin-top bag* has boxed ends and a top which may be fastened without pressure on the sides of the bag. (See Figure 5.)

The *shirt-bottom bag* has a leather fold for shirts fastened on the outside.

The *over-night bag* is small and fitted to its purpose.

The *motor-rail bag* is made with loops to fasten it to a car rail and is soft and compressible.

The *hold-all or carry-all* is an oblong piece of cloth made to roll around luggage. It may have round reinforced ends and handles and straps fastened to it, or it may have only loops through which detachable straps are slipped thus allowing it to be folded flat when not in use.

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**Materials**

Though leather is the basis of the better grades of bags they also require iron for the framework; iron, brass, or nickel for hinges, locks, rivets, nails; pasteboard or tarboard for the foundation; and cotton, linen, or silk materials for linings and interlinings.

**Making the Outside of the Bag**

After the leather has been dyed and grained or embossed, patterns of pasteboard or zinc are laid on it and the pieces cut for the different parts of the bag. The edges of each piece are skived or shaved thin so they may be turned in neatly. For this purpose the operator uses, besides a shaving machine, a sandpaper machine which wears the leather away by friction.

The parts are seamed together with strong linen thread on sewing-machines. In many of the better grade bags a folded strip of leather called a welt is sewed between the two larger pieces to give the seam strength and a finish. The sides and ends may be cut in only two pieces with a welted seam running up the middle of each end.

The bottom of the bag is then sewed in by hand or machine after the stiff interlining has been glued on. If the sides or ends are to be "boxed" the stiffening is put in at this time. In some bags the ends and bottom piece are in one strip with seams at the corners

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Figure 4. Gladstone Bag

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and still others have a welted seam through the middle of this piece and seams at the corners also. Some bags have a seam running around them at the top of the stiffened portion.

The material for stiffening is either pasteboard, tarboard, or stiffened canvas. The latter is the most durable. Some bags, especially those of the kit style, have soft sides, ends, and even bottoms, while others have a collapsible bottom made by a deep lengthwise cut in the stiffening board which allows it to fold up in the middle.

**Corners**

Reinforcing the corners gives added strength to a bag. This is usually done by adding small pieces of leather. These are cut out, embossed, stamped into shape, and applied on the outside. Recently, however, a method of reinforcing from the inside has been invented which can be used for bags having no corner seams. The corners of the side pieces are rounded out by a stamping machine before the bag is sewed together. Canvas and reinforcing material is then applied on the inside of these hollows and sewed on from the outside giving an effect similar to the applied corners but without the edges that become roughened and worn. Figure 4 shows a cabin-top bag with corners reinforced from the inside.

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**Lining**

While the outside of the bag has been in the process of construction the lining has been cut, pockets or other pieces applied, and the whole sewed together ready for insertion.

The linings may be of leather, silk, linen, or cotton. Leather linings are easily kept free from surface dust and are durable and handsome in appearance though they are easily stained. Owing to the increasing cost of leather they are being replaced by silk linings which formerly were more expensive.

Moire, or watered silk, usually found in blue, green, purple, or gray, is preferred for this purpose.

Checked Irish linen is very durable and appropriate for bags which are likely to have hard wear.

Cotton linings may be found in imitation of linen canvas. A heavy satin-finished twill also makes an excellent lining, and if made of mercerized cotton the finish will be permanent.

**Attaching to Frame**

The iron frame to which the bag is attached is covered first with a strip of leather to match that of the bag. The frame may have a long slit running around it through which the bag is sewed by hand or it may be solid with small holes for rivets. Bags which are sewed on the frame are called hand-sewed or Eng-

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lish bags. The riveted bags have small brass nails or rivets driven through the frame, leather, and linings. The rivets are then clipped off and hammered flat on the inside. The rough edges are usually covered with a strip of leather or brass but sometimes the edge of the lining is turned in and the strip is omitted.

**Finishing**

Attachments for the handle, lock, and safety catches are riveted to the frame. The lock is screwed on, the handle attached, and ornamental or protective pieces added to the hinges, the bottom, or other parts as desired. The bag is varnished or given its final dressing, the brass fittings are lacquered to prevent them from tarnishing, and the bag is ready for shipment.

**Sizes**

Traveling bags range in size from 12 to 26 inches.

**Styles of Suitcases**

While the shapes of bags differ in many ways, suitcases and traveling boxes vary only in size and in the relation of their different dimensions. They are all rectangular boxes, made over a stiff box or frame. The principal styles now in use are:

Standard oblong suitcase.

Week-end box with several compartments and trays.

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Over-night case, a small box with fittings.
Hat box for men, with hat form and straps.
Bonnet box for women with straps and cushions inside.

A special variety of box is the luncheon box or basket or the tea basket which has become popular for motor trips.

Bags and suitcases are often fitted with toilet articles and conveniences for traveling, and luncheon boxes or baskets are usually fitted with the necessary dishes and utensils for containing and serving the food.

These fittings have grown so numerous and important as to require a special section.

**Materials for Suitcases**

Suitcases, week-end boxes, and similar traveling cases are made not only of leather, but of wicker, matting, and enameled cloth. The body of the box may be of light wood or tarboard and the materials for the frame, linings, and finishings are the same as for bags.

**The Body**

The most satisfactory body for a suitcase is a three-ply basswood, but a far larger number are made over a tarboard foundation. Basswood is light and tough, so that it retains its shape. The corners of a basswood foundation are rounded so that they may be easily distinguished.

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Figure 5. Cabin-Top Bag

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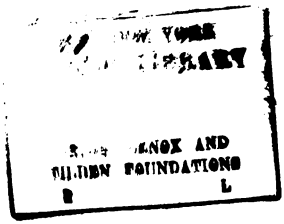


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Tarboard is made from paper waste and old tarred rope. The tar makes it water-proof. It is usually gray or red in color. Less expensive suitcases are made over pasteboard and fiber foundations.

Wicker is a kind of pliant willow used for basket-work and requires no box foundation. The material is softened by soaking in water and it is then woven and bent into the required shape. The wicker for suitcases is usually split.

Matting is made from various straws and grasses and from the fibrous husk of the cocoanut palm. The fibers are woven by a loom into a fabric. The warp threads or those running lengthwise are made of heavy cotton or hemp, which gives strength to the material. The matting is woven wet and then dried in the sun or by slow fires. The fibers take beautiful colors either by dyeing or staining. The material may be dyed before weaving or it may be dyed in the piece. Aniline dyes are used. Most of the matting comes from Japan and China. Matting suitcases must have a foundation of tarboard or pasteboard.

Fiber is a material used for cheaper suitcases. It is a heavy, thick, water-proofed paper made from paper waste or wood pulp treated by chemicals, formed into a pulp, and dried in sheets. It is also used for trunks. Enameled cloth is made by coating cloth with a water-proof dressing which is painted, embossed, or grained

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to look like leather, and varnished. (See Chapter XI on "Substitute Leather.")

**Linings for Suitcases**

The linings of suitcases may be of leather, moire silk, checked linen, cotton or linen crash, the two latter being found in all the less expensive grades.

Silk is a beautiful textile made from the filaments of the silk worm's cocoon. The silk fiber is exceedingly strong, but the moire finish is produced by a process of ironing and may be worn off.

Linen is a strong, smooth, lustrous textile made from the stems of flax. It also has a leathery texture which makes it suitable for bag purposes. It is the strongest and best of textile linings.

Cotton is another textile made from vegetable fiber. It is not so strong as silk or linen and fades more readily. Since it is a vegetable fiber it crushes easily and unless made of the long cotton fibers it soon soils. Because of its cheapness and the many kinds of finishes which it will take it is the textile most generally used.

**The Making of Suitcases**

The wood, tarboard, or pasteboard foundation of the case is cut according to pattern. Wooden bodies are nailed or riveted together, tarboard bodies are bent into shape and glued. The corners of the better cases are reinforced with bands of iron or heavy cloth. The

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leather or other material is glued on the outside of the two parts of the case and these are then attached to the iron frames which form the firm edges for the box and cover. This may be done by sewing or riveting.

Suitcases with wooden foundations have rounded corners and look more solid and strong than any others. The lock and attachments for the handle and strap are put on and the lining is pasted in. Sometimes a strip of leather covers the edges of the lining. Fiber, enameled cloth, and matting cases usually have the edges bound with leather or fiber material and the corners reinforced. The binding and corners may be sewed or riveted on.

The lining for the cover is usually pasted on heavy paper and the pad thus formed is glued in. This gives opportunity for covering the ends of straps and the sides of pockets.

The hinges, handle, and inside or outside straps are attached and the case is given its finishing touches.

Suitcases range in size from 18 to 28 inches.

**Other Bags**

Telescope cases consist of a box and cover of equal depth, which make it possible to expand or contract them. They are usually made of fiber and sometimes reinforced or bound on the edges but are not lined. Some are made of pasteboard, covered inside and out with gray cotton cloth.

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Hat and bonnet boxes are made of hide or of tar-board covered with enameled cloth.

Luncheon boxes are lined with water-proof material, sometimes having one or more compartments made of aluminum.

The hold-all or carry-all is made of canvas enameled cloth or worsted materials lined with canvas and bound around with leather straps, or strap loops are riveted on.

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## Chapter XIV

### HAND-BAGS AND PURSES

**Articles**

The division of hand-bags and purses contains:

For women:

- Leather and silk bags with metal frames
- Leather and silk bags with draw strings
- Bead bags and crocheted silk bags
- Envelope bags and purses
- Coin-purses
- Card-cases

For men:

- Boston bags
- Bill-folds
- Wallets
- Coin-purses
- Card-cases

**Leathers**

The leather for these articles is made of:

| | |
|---|---|
| Splits | Alligator |
| Pigskin | Kangaroo |



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| | |
|---|---|
| Colt | Wallaby |
| Deer | Fishskin |
| Sheep | Lizard |
| Goat | Snake |
| Seal | Calfskin |
| Walrus | |

**Finishes for Leather**

Graining is applied to pigskin, calf, goat, seal, and sea-lion. Pin seal is finished with a small pin point grain. Crêpe seal is finished with a wavy grain.

The suede finish is given to split calf and sheepskin.

The skins of fish, lizards, and snakes are dyed and finished with the natural grain.

The popular Morocco finish is given to goat, split calf, and sheepskins. Pin Morocco is grained like pin seal.

Cordovan leather is made from split horsehide, goat, and pigskin.

Levant leather may be made of various skins. (See Frontispiece for the representative grains and finishes.)

**Morocco**

Morocco leather was originally a sumac-tanned goatskin made in Morocco or North Africa. Its distinguishing color was a bright red or saffron produced by cochineal dye. It was elastic, strong, and soft but firm

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in grain and texture. It is still made there and is used particularly in red, for expensive book bindings. It is used in other colors too as the genuine Morocco can be dyed in the finest shades. It is stained on the grain side.

The Morocco of today is goatskin of any vegetable tannage or hair seal. Sheepskins are often finished as French Morocco, the leather made from the Kazan and other coarse wool sheep being hard to detect from the real Morocco leather. Split calf, chrome-tanned, is often given the Morocco graining and sold as Morocco. The grain is produced by the usual graining or boarding process with an additional crossing both ways from corner to corner or by being put under dies or pendulum rollers which are engraved either with grooves or in imitation of grain.

Morocco leathers are now made by all European countries but the United States ships its Moroccos all over the world, the chrome tannage used making it possible to produce quickly, easily, and cheaply.

**Cordovan**

Cordovan is a soft, firm, small-grained leather made from split horsehide. It derives its name from the city of Cordova in Spain where it is supposed to have been prepared originally by the Moors. In the eleventh century it enjoyed a great reputation because persons

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of rank wore shoes of Cordovan leather. It has a beautiful fine grain and is dyed in a variety of colors. Dogskin, goatskin, and pigskin are now made up to imitate the genuine horsehide Cordovan. The nearly water-proof skin of the horse makes an excellent quality of leather.

**Levant**

Levant leather usually means leather with an embossed or printed surface finished in grain. The surface is bright but dressed with oil only, rather than stuffed with fats and greases as are wax leathers. Inferior goods unsuitable for wax or satin finish may be utilized in this way. The embossing is done with an engraved roller which is passed over the slightly dampened skin. After this the leather is blacked with logwood, softened, and grained.

Vachette is a straight grained calf with an enamel finish.

Russia leather has been treated with the juices of willow bark and curried with oil of birch bark.

**Suede Leather**

Sheepskin splits are often finished by the sueding process, as are also Mochas which, without the sueding, would be much too thick and too unyielding for wear.

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Suede leathers are most invariably tawed with alum, salt, flour, and egg yolk to which olive oil or glycerin has been added. If they are to be pure white, oil should be omitted and a second dressing given in French chalk or China clay.

Suede leathers take dyes readily in a variety of soft and beautiful shades.

The best grade suede skins come from Armenia, North Africa, and China, as these skins are thick and can stand the removal of the grain for sueding. Ooze is leather with a suede finish.

### Silk

Silk bags may be of taffeta, satin, brocade, grosgrain or faille, or of velvet.

Taffeta is a plain-weave silk.

Satin is a silk with a bright surface produced by the satin-weave. In this weave the weft or cross-threads are carried under one thread of the warp and over several (as five or seven) leaving them floating on the surface. These long threads produce the shining satin effect but make the material less firm and durable.

Brocade is a fabric woven in elaborate patterns on the Jacquard loom. The design is made to stand out from the background as though it were embroidered upon it.

Grosgrain or faille has a heavy cross thread intro-

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duced in the weaving giving it a ribbed effect. It is a strong silk especially suitable for linings.

Velvet has a plain weave foundation with an extra warp thread introduced to form loops which when cut make the pile or nap. Panne or chiffon velvet is given its high luster by pressure. Velvet is a beautiful material but crushes easily and the nap wears off if it has hard usage.

Brocade, satin, and velvet, are appropriate for fancy bags and are often elaborately trimmed.

Crocheted bags of heavy silk twist are also found. Bags made of silver, steel, or colored beads are now fashionable. (See "Manual on Jewelry and Silverware.")

Silk, whether for the outside or inside of the bag, and whether taffeta, velvet, moire, grosgrain, or satin brocade, should be of good quality and unweighted or pure, otherwise it is not suitable for this purpose where durability is not only expected but required. Pure silk combines strength and elasticity of fiber, which make it durable, with softness and luster, which make it beautiful. It can be dyed in a great variety of colors and possesses the desirable characteristic of cleanliness as it sheds dust readily. If given a waterproof finish, it is even more suitable for bag purposes.

Artificial silk is not suitable for bags which are to be used for any length of time. It is cotton treated with chemicals to form a silk-like material. It has a beau-

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tiful luster and artistic effect but it lacks the strength and elasticity of silk, and will cut and weaken with use. It also fades more readily than real silk.

Silk fiber has a great affinity for dyes which makes it possible to weight silk by mixing tin, lead, or sugar with the dye stuff. This adds not only weight but luster. The metal substance, however, causes the silk to cut or rot in a very short time, making it of no value for articles like bags. It also is acted upon by the air, causing the silk fabric to deteriorate in value.

### Clasps and Trimmings

The metals used for the clasps and trimmings of hand-bags are:

Gold
Silver
Gun-metal
German silver
Steel
Brass

### Gold

Pure gold is too soft, as well as too expensive, to use as trimmings or decoration. For commercial use gold is "alloyed" or mixed with copper, silver, or nickel to make it harder as well as cheaper. Gold-leaf used for decorative purposes is gold beaten out to

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$\frac{1}{250,000}$ of an inch in thickness. In this form it is sometimes used for leather decoration. The gold used for the trimmings of bags is plated or washed over a base metal. (See "Jewelry and Silverware Manual" for further information on gold.)

**Silver**

Silver is nearly as soft as gold and must be mixed with another metal. Sterling silver is combined with a small amount of copper. It contains 92½ per cent of pure silver and is often used in bag fittings and decorations, but tarnishes easily. (For further information on silver see "Jewelry and Silverware Manual.")

German silver is a combination of zinc, copper, and nickel; copper and nickel contributing the strength, and zinc and nickel the desired color effect, in imitation of silver. This is a durable and cheap alloy suitable for bag trimmings and also for fittings for bags and sets. It does not tarnish.

**Other Metals**

Nickel is a hard metal which is not easily affected by the air. Its color resembles the color of silver which makes it useful as an alloy to be used for decoration. It does not tarnish.

Brass is an alloy of zinc, copper, and nickel, which

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is generally used for the clasps and locks of bags and sometimes for the decorations. Brass is more readily affected by the air than nickel or German silver and should be lacquered. Nickel is sometimes brassed over, but the finish wears off in a short time.

Gun-metal is a finish applied to any metal rather than a metal itself. The original gun-metal was an alloy of copper and tin used for making guns. The dark, purplish color of this is imitated by treating silver or other metals or alloys with sulphur, which produces the dark tarnish.

An oxidized mount is nickel toned to black by brazing or a dull finish.

Cut steel beads for the decorations of bags are sewed on in patterns like embroidery.

**Making Hand-Bags**

The manufacturer of hand-bags, pocketbooks, and purses buys his leathers finished. He also buys the mounts or metal tops already made with catches and trimmings attached.

The making of the bag consists in the cutting and sewing together of the parts of the bag and attaching the united parts to the mount or frame. The process is similar to that for traveling bags.

**Cutting**

The designer cuts the patterns from strong paper,

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pasteboard, or light metal. These patterns are laid upon the skin and the various pieces cut out to best advantage so that no leather is wasted. A number of pieces may be cut at once because the leather is thin. The edges of each piece are skived or shaved thin, as in the making of traveling bags, so that they may be turned in, leaving a smooth, neat edge. The linings, paddings, and pockets are also cut by pattern. In place of patterns the parts are sometimes cut by heavy dies operated by a lever which cuts out several pieces at a time.

**Sewing**

Each part (outside, padding, and lining) is sewed up separately, the pockets and other inside conveniences having already been fitted and attached to the lining. In sewing up the outside, a welting machine similar to the one used in the making of traveling bags sews in the welt between the lower part and sides of the leather in some of the heavier hand-bags. This makes a strong, bulky seam. As the sewing is done on the unfinished side of the leather, the operator may press the seam out by turning the leather and pounding it flat with a hammer.

**Attaching**

The parts are fitted together and attached to the

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frame in one of two ways. Between the sides of the frame, which is usually brass, steel, or tin, is a space called the channel. Into this the operator forces the upper edges of the fitted parts, pushing them well up into the frame with a hand tool. When properly arranged in the channel the frame is clamped tight, either by hand tool or machine, fastening it securely to the bag. The better bags are attached in this way.

In cheaper bags an inlay, which is a light metal frame, is first attached to the fitted parts. This is then inserted into the channel and riveted in place in the frame. The first method makes the neater attachment and one also sufficiently strong.

The handle, made of very thinly skived leather and suitably lined, is finally attached to the finished bag.

**Pocketbooks and Purses**

The parts of pocketbooks and purses are also cut by pattern. After the linings are fitted with the pockets and various sections, the edges of the leather, thinly shaved, are turned over the lining, pasted down, and finally sewed into shape. If the article is closed with a snap, the snap is put on by a machine; if by a frame and clasp, it is attached to the frame by the same method as in hand-bags. Sometimes there is an inner section mounted in a frame, and an outer flap closed with a plain or ornamental clasp. Padding is some-

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times used as an interlining of pocketbooks to give a full, soft appearance.

**Other Styles**

Many silk bags are now being made with a draw string. These are all called pouch bags though different in shape and trimming. Some are long and narrow, ending with a tassel of silk or beads, others have ruffles and frills. The "crinoline" design is made with overskirts and ruffles, which are usually embroidered in beads.

Opera bags are pouch bags of soft leather, velvet, or silk.

A popular variety of crocheted bags is long and narrow with successive bands of bright colors.

Envelope bags and purses are flat, and made like an envelope with a long flap. The larger ones have a strap handle of leather either fitting closely over the top or at the back. They usually contain a mirror and coin purse and sometimes a powder puff. As it is desirable that they should keep their shape they are interlined with felt paper, canvas, or pasteboard and the thin leather is sometimes padded with cotton. Silk is the customary lining though kid and sheepskin are also used. Ornament is confined to the clasp, corners, and edge of the flap.

Some flat silk bags with strap handles are called

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envelope bags, but they scarcely answer this description.

Coin or change purses may be soft and flat, made of an oblong piece of leather or silk stitched on the lining and then folded to make a pocket with a flap which is snapped down on the purse. They may also be of heavier leather with a metal frame snapping together at the top. One form of coin purse has a central stiffened piece with a pocket for change on one side and a folding piece for bills on the other.

Card-cases differ from envelope purses in having no fastenings though some have a pocket which is closed with a clasp or leather thong.

Boston bags are used by both men and women especially for carrying papers and books. They are the size of a small traveling bag, made of one piece of leather with a strap across the top fastening with a buckle. They are strong, light, and roomy.

**Articles for Men**

Bill-folds for men have several sections for cards and a secret pocket for bills which runs the whole length. They fold over once or twice. Some are made with a snap fastening and some without. They are unlined as well as lined with silk or leather.

Wallets have several pockets, both tight and gusseted, for cards, bills, and stamps. Some have inside

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flaps over the pockets. Some wallets for men have ornamental corners or mounting along the edge of the flap.

One form of coin-purse for men is called the tray design. It is made of heavy leather such as pigskin with one side rounded and the other square cornered. One portion has a graduated stiffened collar around it measuring about half an inch at its widest point. The other section has one or two pockets covered with flaps and fits tightly into the stiffened rim when the purse is closed.

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# Chapter XV

## FITTED BAGS AND CASES

### Varieties

Fitted bags and boxes are equipped for traveling. They may be:

Toilet cases for men or women
Pullman bags
Over-night cases
Motor toilet cases
Fitted traveling bags
Fitted suitcases
Luncheon cases
Picnic and tea baskets

### Toilet Cases

Toilet cases, containing the most important toilet articles in a compact form, often very complete, are sometimes covered with leather and supplied with handles so that they can be carried as separate hand-bags. Others are leather-covered cases with clasps or straps but without handles. Still others are made of silk to match the lining of a traveling bag. Small ones



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are made of rubberized silk and lined with rubber.

**Toilet Articles**

A toilet case for women contains hair brush, comb, mirror, clothes brush, tooth and nail brushes (in holders), soap box, talcum powder box, hairpin box, salve jar, tooth powder box, buttonhook, scissors, nail file, and buffer.

A toilet case for a man is fitted with military brushes, nail and tooth brush (in a case or guard), comb, scissors, tooth powder box, bottle for liquid, shaving brush, shaving soap, clothes brush, and nail file. Some toilet cases for men contain mirrors, but many do not. (See Figure 6.)

A further description of toilet articles will be found in the "Jewelry and Silverware Manual." Those for bag fittings should be as small and light as is possible without affecting their strength and attractive appearance. Space and weight are always matters of importance.

**Materials**

The fittings may be of ebony, celluloid, or silver, or for very luxurious bags, of ivory, tortoise shell, or gold. The bottles are of glass with metal stoppers and add greatly to the weight of the bag. Receptacles made of celluloid are lighter but not so elegant in appearance.

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Brushes and manicure articles are the most important articles in traveling equipment, though a sewing box is necessary for a journey of any length. The sewing box may contain from one to three pairs of scissors, a knife, a stiletto, a thimble, a needle and pin case, and a small assortment of thread.

**Complete Manicure Sets**

Among the fittings of a traveling bag or suitcase will be found more or less complete manicure sets which vary according to the general equipment. A full manicure set may include:

Nail file for filing down and smoothing the top of the nail.
Emery boards or sand boards for completing this process.
Orange sticks for cleaning the nail and pushing back the cuticle.
Nail cleaner of steel.
Cuticle pusher of steel.
Cuticle scissors for cutting the skin at the base of the nail. These have long, thin points.
Cuticle knife for this same purpose.
Tweezers for removing hang-nails.
Clippers for clipping the corners of the nails.
Nail scissors for the same purpose. These have short and broad points.

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Nail rouge or paste for polishing the nail.
Nail powder to complete this process.
Buffer or pad covered with chamois for applying the rouge and nail powder.

Additional articles sometimes found are a button-hook, a corn knife, and a blemish extractor.

It will be seen that in a number of cases there are two or more implements for the same purpose. It is well to know the purpose and use of each, but it is also well to know which are the necessary articles, as some cases are not even supplied with all of these.

**Simple Manicure Sets**

The simplest equipment should include a file, an orange stick or cleaner, cuticle scissors, nail rouge and powder, and a buffer.

The file should be fine, smooth, and flexible, and the orange stick should have a rounded spade end if it is to be used as a cuticle pusher. If only one pair of scissors is included they should be cuticle and not nail scissors, but should not have too fine needle points.

All the implements are made of steel except the emery boards, orange sticks, and the buffer. The nail cleaner may be of ivory or mother-of-pearl. The handles are of celluloid, ebony, mother-of-pearl, ivory, silver, or gold. Buffers are made of the same materials. They sometimes have detachable rims for inserting

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new chamois. On some buffers the chamois is protected by a small cover.

**Manufacture of Toilet Cases**

Toilet cases are made by bag manufacturers from bag materials and often to match the bag linings.

The pieces are cut from pasteboard patterns with markings for loops or other attachments. The lining is pasted on felt paper and an interlining of canvas, stiffened with thin cardboard, is pasted in the covering if that is made of leather. If the case is covered with silk a layer of cotton wadding is inserted.

All loops or pockets are sewed or riveted to the lining, the snap fasteners to the outside, and they are then glued together. Easels which are to hold the bag fittings are made in the same way as the toilet cases but stiffened with heavy board so that they will stand upright.

**Pullman Bags**

Pullman bags are made of rubberized silk and close with draw strings. They have loops inside for fittings which are in very compact form to carry from the berth to the dressing room of a pullman.

**Over-Night Cases**

Over-night cases or bags have the toilet articles

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necessary for a short trip and space for a small amount of clothing. The toilet articles are practically the same as in the toilet cases. They may be arranged on a removable easel or in loops attached to the lining.

### Motor Toilet Cases

Motor toilet bags are made of rubberized silk and have a folding wash basin of rubber, wash cloth, toilet soap, and face towel.

### Fitted Traveling Bags

Fitted traveling bags also have either pockets or loops attached to the lining for holding toilet articles or a folding easel which may be laid flat in the bag or placed in an upright position on a dressing table.

These bags contain practically the same articles as the toilet cases. Those for women may have a sewing box in addition. (See Figure 7.)

### Fitted Suitcases

Fitted suitcases have the fittings arranged along the side, in the cover and sometimes at the ends of the case, leaving the central space for clothing.

In addition to the regular supply of articles a suitcase for women may include also six glass bottles, a glove stretcher, shoe horn, clock, leather jewel case, and sewing box, and for a man a shoe horn, razor

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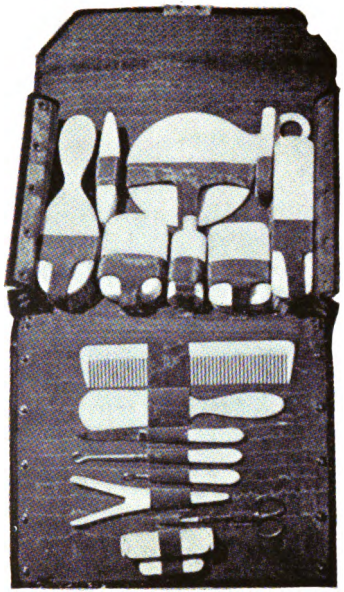

Courtesy of K. Kaufmann and Company

Figure 6. Fitted Toilet Case

Figure 7. Fitted Traveling Bag

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NEW YORK
PUBLIC LIBRARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS
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strop, and a manicure case or pad containing scissors, buttonhook, and nail file.

**Luncheon Cases**

Luncheon and tea boxes have compartments arranged so that the dishes and other receptacles for food shall be packed in the most compact and convenient form.

Luncheon cases are fitted with napkins, knives, forks and spoons, a can opener, cups, plates, pepper and salt shakers, a sandwich box, and compartments to hold thermos bottles. The bottles do not usually accompany the case but may be added. Glass or metal jars for butter or cream may be added. Luncheon cases are usually covered with enamel cloth.

**Picnic and Tea Baskets**

Luncheon baskets are made of wicker with a waterproof lining.

Tea baskets have a kettle in which to boil water, an alcohol lamp, a tea and sugar cannister, cups, spoons, a cream flask, and sometimes a sandwich box and plates. They usually have a metal lining.

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# Chapter XVI

## BRUSHES

### Necessary Qualities

The brush is one of the most important pieces included in the fittings of a bag or sold separately in this department.

In selecting or judging a brush it is essential to know the kind and quality of the material in the bristle and back, and also how the brush is made. This determines its durability, and, to some extent, its suitability.

### Bristles

The bristles used for brushes are either animal bristle or hair, or vegetable fiber.

Bristles of the best quality are obtained from the Siberian wild hog, and the second grade, from the Chinese, French, or American hog. The vegetable fibers are obtained from palms with roots resembling horse hair, or from broom corn, split cane, and rushes. Shaving brushes are made of badger hair. The so-called camel's hair in brushes is usually squirrel's hair or fur.



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**Hog Bristles**

The hog bristles are imported and sold by the pound, boiled, bleached, and dressed. They must have life and elasticity, toughness and in some cases, fineness. They should be dead black or pure white according to their use. Bristles grown in cold countries are the stiffest and most durable.

The Russian bristle is stiff and tapering, sometimes 7 inches long, either black or white.

The Chinese bristle is less firm and durable, about 5½ inches long.

The French bristle is third in value.

The German bristle varies from short to 6 inches long. In color it is black, brown, and white.

The American bristle is short, 2 to 3 inches long, but it is fine and flexible. It is the cheapest and is used for mixing with other bristles. The butt end, the end nearest the skin, is thick and stiff and is used for the finer hair brushes. The opposite end, known as the flag end, is thin and more flexible, and used for paint brushes.

**Fiber Bristles**

Fiber bristles are prepared from leaves and stalks which have been allowed to rot. The harder fibers are bleached, colored, and stiffened by shellac or varnish. These are used for imitation bristles. Moisture

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or use soon takes out the stiffening and resiliency leaving them limber and soft.

Brushes of poor quality may have a fringe of real bristles arranged about a center of fiber, or they may be a mixture of high grade and inferior bristles, as in the filled badger shaving brush.

There are three simple methods of determining whether the bristles of brushes are real bristle or fiber bristle.

1. Press the finger or thumb into the center of the brush and then lift it quickly. True bristles spring back to an upright position immediately, while imitation straighten more slowly.

2. Pull the bristle between thumb nail and forefinger tightly pressed. If a bristle it will curl over but if a fiber will drop or break off.

3. Heat the bristle or touch a match to it. If it burns like hair it is true bristle, but if like paper it is fiber.

**Backs of Brushes**

The backs of brushes may be of wood, hard rubber, celluloid, amber, tortoise shell, ivory, leather, silver, or gold, the last three being used only as ornamental coverings for a wooden stock or foundation.

**Wood**

Among the varieties of wood used are maple, birch,

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ebony, rosewood, mahogany, satin, teak, or boxwood. Of these maple, satinwood, birch, and boxwood are light in color; rosewood is a rich, reddish-brown; mahogany is red, though often stained brown; ebony and teakwood are black.

The wood for brush backs should be light, tough, and durable, with a dense hard grain capable of taking a good polish. Soft, cheap woods are often stained to imitate the more valuable ones, but they are apt to split and soon lose their color and finish.

### Hard Rubber or Ebonite

Hard rubber or ebonite is crude rubber mixed with sulphur and other materials and vulcanized in molds. Vulcanization, which is a treatment with sulphur, heat, and pressure, improves the quality of rubber by making it less soft and less easily affected by changes of temperature. For hard rubber the process is carried further than for ordinary rubber articles, making it hard and capable of taking a high polish. Hard rubber is also used for combs, fountain pen barrels, and many other articles.

### Celluloid

In the fitting of bags and also in fancy leather goods novelties, celluloid plays an important part. Combs, backs of brushes, equipment of desk sets, and many

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other varied and attractive articles are made of this light and durable material.

Celluloid is made of vegetable fiber which when treated with acids, camphor, and other substances becomes elastic and capable of being molded. It takes color effectively. Aniline dyes are either mixed with the materials in the pulp state, or they are put on by brush after the material has been molded in sheets.

Many valuable and rare materials, such as ivory, horn, tortoise shell, amber, coral, and pearl are so well imitated in celluloid as to be detected from the real only by careful examination.

Imitation ivory or French ivory is made from a creamy white mixture of celluloid partially dried in sheets. By arranging these sheets in special order and passing heavy calender rolls over them, the grain and knots of the genuine ivory are cleverly imitated.

### Amber

Amber is the hard, brittle, lustrous gum of certain pine trees, which have lain buried in the ground for many years.

In color it is usually yellow, ranging from a pale straw tint to a deep orange shade. It is usually translucent, sometimes transparent. It takes a high luster and polish and is easily worked. When heated it can be molded.

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Amber is well imitated in celluloid.

### Tortoise Shell

Tortoise shell is the horny scales or outer shell of a certain sea turtle, called the hawksbill.

The color is a rich brown mottled with yellow. The value lies in the color rather than the size, though both large and small shells are sold by weight. The clear amber-colored shell is the most valuable, the red-brown next, and the dark brown least.

### Ivory

Ivory is obtained from the tusks of the elephant. Its beautiful cream-white color, dense texture, and capability of taking a high polish make it very desirable for ornamental articles. It darkens with age taking on a brownish-yellow tone.

### Leather

The leather for brush backs may be a thin covering for a wooden foundation, or a thick but flexible strip to which bristles are attached. Patterns are often embossed or stamped on it.

### Silver or Gold

Silver or gold for this purpose is used in a thin shell which forms a casing over the wooden foundation or

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stock. Sometimes the silver for sterling silver brushes is so thin as to be easily broken.

**Manufacture of Brushes**

The backs of brushes may be either solid or split. The solid backs are made of one piece while the split backs have a top piece or veneer put on over the stock or portion which holds the bristles. The solid back is made of heavier wood and is less likely to split or warp.

There are three ways of inserting bristles in brushes, but only two of these concern the brushes of this department:

Compound set
Compound drawn

**Compound Set**

For the compound set, holes are drilled in the stock, or back. The thick ends of the bristles are dipped into a molten cement, bound around with thread, dipped again and set into the hole in the stock. This makes a second-grade brush. Washing and use loosen the fibers.

**Compound Drawn**

In this style the bristles are drawn into the holes by loops of wire or thread which double the bristles, thus

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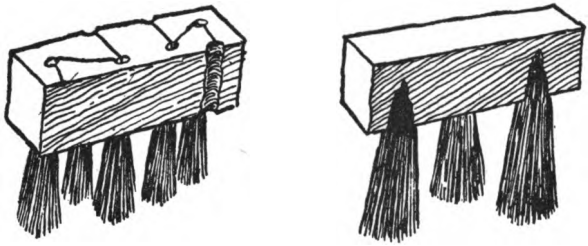
forming the required size of tuft. The tuft-ends are cut with shears to the necessary length and form. The back is covered with a veneer of wood or other material which conceals the wire as well as any crude work. In solid back brushes, holes are drilled from end to end connecting the holes for the bristles. A



Compound Drawn Compound Set

Figure 8. Methods of Inserting Bristles in Brushes

wire or a strong waxed linen thread is drawn through the bristles in each row and the end fastened with a plug. (See Figure 8.)

A good quality of tooth, shaving, and hair brush is made by having the bristles set in molten rubber which upon cooling holds them firmly. Hard rubber backs are often filled in this way securing the bristles by cement but for a wooden or metallic back wiring is preferable.

**Care of Brushes**

Brushes should be cared for according to the kind

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of materials of which they are made and the process by which they are made.

Hot water softens the wood, melts the cement, and loosens the fibers of a compound set brush. Split and solid backs, compound drawn, should last for a life-time, if made of durable wood and animal bristles. Good bristles should last a long time and be cleaned without injury. If inferior they will weaken, break and fall out.

Brushes should be washed in luke warm water with a teaspoonful of borax and two or three of ammonia to a quart. They should then be rinsed and laid in the sun to bleach.

**Combs**

Combs are made of celluloid, hard rubber, horn, ivory, or tortoise shell with silver and gold mountings. (See combs in "Jewelry" and "Notions" manuals.)

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# Chapter XVII

## TRAVELING ACCESSORIES AND AUTOMOBILE SUPPLIES

### Traveling Accessories

Traveling accessories found in the Leather Department include a variety of articles for convenience and comfort, of which the most important are:

Traveling sets
Coat hanger sets
Collar boxes and pouches
Shirt cases
Tie hangers
Traveling slippers
Rubber pillows
Hot water bottles
Ice bags
Traveling clocks and watch cases
First aid kits and medicine cases
Tool kits

Traveling sets for women may comprise either an air pillow and hot water bag or a box or bag of toilet articles.



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Traveling sets for men may comprise a collar bag, handkerchief case, tie case, a toilet case or manicure set, a shaving case, or Pullman bag.

Coat hanger sets, tie hangers, and shirt cases are also included in the conveniences for men while sewing cases, veil cases, and pin boxes are made for women. Traveling slippers and watch or clock cases are used by both.

There are many varieties of small sewing cases for traveling. Some of these are fitted very completely.

Watch cases for traveling are so made that the watch is well protected in a padded box while not in use and may be propped up in the case so that the face may be easily seen. The dial should have bold figures to be seen at night.

**Materials**

The characteristics of the materials used for these cases are their softness and pliability. They are made of:

Thin pigskin
Glazed calfskin
Morocco
Chamois, goat
Suede and glove leather
Rubberized silk, rubber
Moire silk and satin
Sateen

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Many of the articles have no interlining or stiffening, so that they may be crushed into the smallest possible space in a bag or suitcase. They are dainty in form and material but most of them are without decoration. The rule for a traveler's equipment is elegance, simplicity, and good materials; but it should not be conspicuous in color or ornamentation.

The question of space and weight which must always be considered justify the thin rubberized silk for pillows and water bags, and the soft slippers folded in a tiny case. For this reason the collapsible or shallow drinking cup is better than the drinking glass though the latter is not likely to collapse at the wrong time.

**Automobile Supplies**

Automobile supplies include:

Thermos bottles and cases
Cups and saucers
Plates
A water kettle
Sandwich and cheese boxes
Napkins
Bottles and flasks
Drinking cups
A rubber wash basin
A flash light

The fittings for luncheon cases and baskets and tea

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baskets have been given in Chapter XV on "Fitted Bags and Cases."

**Thermos Bottles**

Thermos bottles are designed to keep liquids either hot or cold for many hours.

They are made by blowing two bottles one inside the other, pumping the air out of the space between, to make a vacuum as vacuums do not transmit heat or cold, and then sealing the two bottles together at the neck.

The outside of the inner and the inside of the outer bottle are silvered like a mirror which causes any heat waves which may reach the bottle to be reflected.

Thermos bottles will keep cold liquids cold, longer than they will keep hot liquids hot, because heat escapes through the small space in the neck.

Thermos bottles need to be carefully cleaned after each use, or they become unsanitary. Milk or any liquid containing milk or cream will adhere closely to the glass surfaces. Soup and beer often leave a peculiar odor, while plain, unfiltered water in time will cause a deposit on the glass. Hot soda water, made of either washing or baking soda; or shot, will clean them effectively. Shot is likely to break the glass, unless used with care, but it cleans thoroughly.

A case containing one or two thermos bottles and

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a sandwich box with a nest of aluminum or paper cups forms the most satisfactory picnic equipment for the amount of space used. A water kettle, wooden or enamel plates, paper napkins, and folding knives, forks, and spoons may be added in an automobile without consuming much more space. If the luncheon case or tea basket is not practicable the motor-rail bag may contain all of the smaller articles.

The folding rubber wash basin and towel in a case is often found most necessary in a country trip and the flash light is often needed for special service on country roads at night.

A tool kit is supplied with necessary small tools such as a hammer, screw driver, knife, can opener, and file. Some kits are fitted for automobile needs only, others for more general use.

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## Chapter XVIII

### LIBRARY EQUIPMENT

**Articles**

The Leather Department contains many articles for the library table including:

Desk sets
Stationery cabinets
Library sets
Desk baskets
Portfolios and writing cases
Recording books and pads
Pencil cases
Brief-cases and music folios
Picture frames, book covers
Bridge sets and playing card cases
Albums
Scrap books

**Desk Sets**

A complete desk set comprises a desk pad, stationery rack, inkstand, calendar, stamp box, blotter, pen tray, pen brush, paper clip, and paper knife. Sometimes the



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pad is made with compartments for stationery at the back.

**Stationery Cabinets**

Stationery cabinets have several compartments for stationery and a cover which protects the paper from dust.

**Library Sets**

A library set comprises a paper knife and long pair of shears in a case.

**Desk Baskets**

Desk baskets may be simple open baskets lined with leather or sateen or they may contain a letter file which can be fastened down and locked. Sometimes they are fitted with paper cutters and shears. They may also be furnished with twine, paste, tags, labels, etc. Handy boxes have a similar equipment.

**Portfolios**

Portfolios and writing cases may be found in great variety. The book design is fitted with writing pad, inkwell, calendar, paper cutter, stationery and stamp pockets. Fountain pens are now so generally used that a loop for the pen is sometimes substituted for the inkwell.

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**Recording Books**

Recording books and pads include telephone registers, guest books, engagement books and pad, and diaries.

**Brief-Cases and Music Folios**

Brief-cases and music folios are flat leather cases with handle straps and locks to hold manuscripts, books, or music.

**Albums**

Photograph albums and scrap books are made with extra strips at the back to allow the space needed for kodak pictures, clippings, or similar inserts.

**Covers**

Book and magazine covers are made with pockets into which the paper or cloth covers of the periodical or book are inserted.

**Materials**

The leathers for sets, cases, and boxes are usually the lighter leathers such as Morocco, Russia, Cordovan, seal, Levant, calf, and pigskin and for the smaller articles, sheepskin, chamois, vellum, lizard, and snake.

**Decoration**

This is the division of the Leather Goods Depart-

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ment which is marked by the beautiful colors, finish, and decoration of the articles although the same processes are used in some of the other divisions.

In the larger pieces the grain itself is the most effective kind of decoration, heightened by the soft rich colors and handsome finishes to which leather of good quality lends itself. Where decoration other than this is given it may be by one or more methods.

**Tooling**

Tooling may be done in one of the following ways.

1. *Incising.* The outlines of design are made by an incising knife and then opened by an opener, making a flat decoration sometimes called engraved or cut leather. In carving the design is cut much deeper than in incising leaving a design which stands out in sufficient relief to be further ornamented. A thick firm leather is necessary for carving. Russian kid or calf is often selected. In fancy leathers a pleasing effect is gained by introducing color and a background of punching.

2. *Embossing.* Leather may be embossed by hand the design being outlined on the back and worked into relief by the pressure of hand tools. It may also be embossed by stamping machines whose action is similar to those which produce an artificial grain. The design is usually finished on the right side with modeling

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tools in order to make it more effective and padding of wax cotton or leatherette is sometimes inserted. (See Frontispiece.)

3. *Hammering or Punching.* This is usually used for backgrounds and is done by steel punches of different patterns to add richness and finish.

4. *Stamping.* The design is sunk into the dampened leather by an incised steel die held in a press. Stamped leather may be finished by hand to look like tooled leather.

5. *Burning.* The design is made by a platinum pointed tool, an alcohol lamp, and benzene. This method of decoration is most effective on soft-finished leather and also on wood, paper, and ivory.

**Staining**

In staining, the leather must be kept damp enough for the dye to penetrate but not so wet that the dye will run. A weak solution of the color is applied with a camel's hair or sable brush. Several coats are given until the color has penetrated the goods thoroughly. If the background is being stained in large surfaces a sponge or piece of cotton wool may be used. Lastly, the entire surface should be given a pale wash of the background color so as to give harmonious effect. Unusual effects of stained leather are obtained by:

Sprinkling, which puts color on in light flecks.

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Marbling, which "dabs" the color on in larger spots giving a marbled effect.

Shading, produced by a circular motion of a sponge filled with the color.

**Stenciling**

Stencils may be used with good effect on leather goods. The color for stenciling is usually a paste containing a dye applied through a pattern made of stiff oiled paper or metal in which the design has been cut.

**Gilding and Bronzing**

This is done by applying gold or bronze powder dissolved in turpentine or varnish to make the powder stick. For gilding with hot tools a specially prepared powder of resin or gum is used. This is melted by the heat of the tool which causes the gold leaf to adhere to the leather only where the tool presses it. The surplus gold is removed by a soft brush. Gold is also applied with a slightly dampened brush and burnished with an agate or punch. The design of the punch stands out in bright gold on a background of dull gold.

**Color**

Color is much used in leather novelties. It is introduced by either dyeing or staining and beautiful

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shaded effects may be produced.[1] India ink is used sometimes for the lighter free-hand work and sometimes even for a background stain. Oil paints are also used for decorating leather but are not so suitable as staining as the latter method shows more of the natural grain. A veneer or wash of color is often applied by the French to intensify the tone of the color or to give the effect of antiquity. Colors cannot be expected to remain unaffected by the direct sunlight and hard wear, but if the dye is of good quality and well applied they should remain reasonably fast. Too great a variety of colors is confusing and suitable only for geometrical designs worked out in oriental colors. The foliage of autumn leaves suggests both good design and color for leather goods.

### Designs

Natural designs are not so appropriate for tooling as the conventional or geometrical forms, first because leather is a rather unyielding material and second be-

1 Some of the colors used in artistic hand leather work are:
Black — a wash of sulphate of iron over another potash.
White — painted on as an enamel.
Brown — washes of potash.
Gray — permanganate of potash.
Blue — indigo or alizarin from madder.
Green — alternative washes of blue and yellow — for olive-green successive washes of sulphate of iron and picric yellow.
Red — alizarin, logwood, cochineal.
Yellow — picric acids.
Orange — red over yellow.
Pink — carthamine.

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cause leather articles are expected to withstand hard usage. In modeled work bold but not too elaborate or detailed designs are most suitable. Embossing in low relief and with flowing lines makes the decoration seem a part of the leather, suggesting rather than forcing the design upon the attention. (See Figure 1 for illustrations of these types of designs.)

**Methods Used for Different Leathers**

For leather work good and suitable skins should be selected and the design chosen with regard to the kind of leather and the use for which the article is designed. The leather should be fine and supple in texture and the surface free from blemishes. It should be evenly tanned and of sufficient thickness to retain the modeling. If for colored leathers it should be leather whose method of tannage permits it to take the colors evenly and clearly. Skins for leather novelties should be ordered from firms which make a specialty of decorative leathers.

Russian calf, ooze calf, and split cowhide are suitable for modeling as they are durable and have a smooth surface. They are used for bill books, library set cases, wrist guards, watch fobs, purses, and belts.

Morocco and Russian leather are much used for fine book work as they are both durable and effective in finish. Sheepskin is a cheap leather suitable for

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penwipers, stamp books, memo pads, blotter corners and suede leather goods. It cannot be tooled in permanent form as it lacks firmness. Art sheepskins come in a variety of color, browns, grays, and greens.

Chamois is suitable only for flat ornament in burning or stencil. Used in its natural color it makes an artistic background for an open work pattern of leather of another color. This is called appliqué or Mosaic work.

Vellum is a fine, thin, and stiff white skin used particularly for brush or pen work and for book bindings. It is often decorated in miniatures, in color.

Pigskin is firm but too thin for carving. It is excellent for stamped work and also for burning because of the contrast between its light tint and the dark brown of the design. Its natural grain makes a highly effective background.

**Tools**

The tools used in decorating leather are very few. The most important are a slab of marble, glass, or slate on which the work is done, a tracer to pick out patterns, stamps or dies with which to make the background, cutting or incising knives, a hammer and opener, a triangle and foot rule for making designs, and brushes and sponges for coloring.

The design is made on paper and transferred to the

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leather. The leather is kept dampened while being worked on, whether the design is to be brought out by tooling or by coloring.

**History of Leather Decoration**

The art of decorating leather is of very ancient origin. The Crusaders ornamented leather with wool, silk, and precious metals. Europe learned the art of working in leather from the Moors of Spain. Cordova, Spain, excelled in decorative leather work. Venice imported modeled and stamped leathers from the Orient. In the court of Burgundy, France, marvels of carved and embossed leather were executed, now shown in the Dijon and other museums.

Decorated leather was considered the ideal material for the mantles and plumed helmets of heraldry.

In the Middle Ages fine leathers designed by the monks as coverings for the beautiful manuscripts they wrote, were adorned with enamels and gold. Heraldic subjects in carved and modeled leather were introduced as a type of decoration.

The invention of printing called for the more general and cheaper use of leather for bookbinding. Leather sometimes decorated in mosaic or tooled in gold formed a perfect covering for books.

**Modern Centers of the Industry**

Leather decorations in modern manufacturing cen-

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ters must be done on a larger scale and so less artistically and more mechanically, especially if machine work as much of it is. Designs are stamped on the leather by dies of various kinds. They are not even modeled by hand tools in the less expensive goods. Designs in color may be applied by means of printed transfer paper as in the decoration of china. On this paper the design has been copied in dye colors. Applied to dampened leather and allowed to stand for a short time, the design in color is transferred from the paper to the leather, rubbed over with a suitable varnish, and dried. Fancy leather pieces may in this way be attractively decorated in large quantities and at small expense.

Germany, France, England, and the United States all have large fancy leather goods establishments, this being now a highly specialized branch of the leather industry.

Offenbach-am-Main is one of Germany's most important fancy leather goods centers. It is said to be the largest source of manufacture in the world for articles of this class. It has a school for fancy leather working acknowledged to be the best in Germany. This school produces not only expert leather workers but also experts in artistic and novel conceptions in designing and decorating. The course contains theoretical and practical instruction in the raw materials, produc-

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tion of leather and fabrics, cutting out, and making up. It encourages originality in the art of fancy leather making. Here are located all the necessary materials, the tanneries, leather dressing factories, makers of bag frames and fittings, vanity and toilet requisites, as well as the silks and other fabrics essential to the trade. The workmen are highly specialized.

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# Chapter XIX

## HISTORY AND SOURCES OF LEATHER

### Antiquity of Leather

"Leather is as old as trade" is one of the proverbs of commerce. It was known in the time of Moses when leather carpets were used as tents.

An Egyptian collection contains leather sandals and shoes with round toes, ankle, and fore straps for children, and also shoes of a stouter make for men. Bottles of skin were used for wine and oil even as they are today in the Orient.

The Romans used leather which they tanned with oil, alum, and bark. Near the beginning of the present era a crude form of tannage with bark and gall nuts was known. The Turks, Russians, and Hungarians in the early Christian centuries were celebrated tanners, and were later copied by the English, Dutch, and Spanish. About 1300 A. D. embossed leather was manufactured in the form of tapestry richly colored and gilded, an art received from the Egyptians who were clever workers in leather.

The Hungarians are said to have brought the art of



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dressing leather from Senegal in Africa, and to have made excellent leather before the middle of the sixteenth century. Two German tanners introduced their method into France. From this time the industry spread over other countries quite rapidly as its useful and beautiful products satisfied a growing demand.

**Simplicity of Primitive Methods of Tanning**

The primitive uses of leather did not require a genuine process of tanning. In most cases the skins of animals were probably only cleansed and dried in the sun or smoke cured and externally greased, and so in reality they were not genuine leather. Early settlers in America found the Indians wearing skins prepared with oil and clay.

The principles of leather dressing or tanning which were worked out by the Egyptians, Romans, and other civilized nations govern the processes in use today, but the invention of machinery and the study of chemistry have greatly reduced the time and labor necessary.

**Beginning of Modern Methods**

The use of lime to remove hair from the skins was introduced by English tanners in 1790 and marks the beginning of modern methods of tanning. Even after the discovery of the more modern methods, however, they were but slowly adopted by the practical tan-

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ners. To quote an eminent English authority: "Up to about 70 years ago the tanners were men of small means, diffused throughout the country, unaided by railway communications and the advantages of machinery, and utterly free from any knowledge of chemical principles. As a contrast to this condition of the trade, we have now an accumulation of extensive tanneries, many of which are situated near the great ports where the raw materials are landed from abroad; the capital invested runs into several millions. In some of these tanneries the principles of the art are not only understood but closely followed, while the advantages of labor-saving machinery have been recognized and mechanical appliances adopted which the tanner of old would have looked at but to condemn."

**Development of the Industry in the United States**

It is interesting to know that the first tannery in the United States was situated in Virginia as early as 1690. Soon after this, one was established in Lynn, Massachusetts, followed by many others scattered about in rural hamlets and mountain valleys of the Appalachian region which was rich in the bark tanning materials. The development of early tanneries in the United States naturally followed the bark tanning belts, one extending from New York to Georgia, and the other following the hemlock region from Massa-

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chusetts to Wisconsin, both of which are leading leather states.

**Sources of the Raw Material**

The skins of wild animals furnished the leather in earlier times, but today it comes almost altogether from domesticated animals, particularly the ox and sheep. The Chicago stock yards where American packers salt their hides is the largest green-salted hide market in the world, the animals coming from the large western stock ranches.

The United States not only raises large quantities of its leather producing animals but also leads all other countries in the manufacture of leather. It imports from South America, Mexico, China, India, Italy, Turkey, and other countries hides and skins amounting in value to nearly $100,000,000 annually — one of the largest items of our foreign trade. Of goatskins alone we import over a hundred million a year.

In tanning materials we are the richest country in the world and on account of their scarcity in England, Germany, and France, we get many skins and hides from these manufacturing countries.

The United States manufactures over $300,000,000 worth of leather annually, much of which it exports. 50,000 people are employed in this industry. According to the census of 1909 Pennsylvania leads in the

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tanning, and is followed by Wisconsin and Massachusetts. New York leads in the finishing of leather, and is followed by Illinois and Missouri in the manufacture of leather goods other than shoes.

Philadelphia is the greatest leather manufacturing center in the world. Its chrome tannage methods do not depend upon forest districts and products, and its transportation facilities make it possible to import raw materials at reasonable expense. It uses many imported goatskins for specialties such as patent and enameled leathers and vici kid. Skilled labor and nearness to markets also account for this city's position among leather manufacturing centers.

**The Leather Industry in Other Countries**

South America, with its extensive plains, furnishes large quantities of "wet salted" and "dry" hides to the United States and other countries that manufacture good leather. Most hides for Cordovan leather are taken from horses of South America. There is practically no preparation of leather or manufacture of leather goods.

Australia is a great hide producing country, the squatters, dairy, and other farmers being the promoters of the industry. Immense runs of thousands of acres in extent provide not only leather, but the vast amounts of beef and chilled meats which are exported from

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Sidney, Melbourne, and other centers of Australian commerce. Both cattle and sheep hides are exported from Australia in large numbers, the latter usually in the pickled state. The kangaroo, which has a valuable hide for shoe and book-binding and fancy leathers, is found only in Australia. Australia exports most of her hides to England and Germany for manufacture.

France is very largely engaged in the fine leather and leather goods industry. She raises cattle, horses, sheep, goats, and pigs, and also imports many more to meet her demands. Her forests provide tanning materials. Patent and lacquered leathers, kid, Morocco, glacé calf, and various tawed and chamoyed leathers for gloves are among her products. Her chief leather manufacturing districts are Paris, Nancy, Toulouse, Lynn, Bordeaux, and others. In southeastern France are the world's most famous glove leather districts.

Germany leads the world in the output of fine leathers, manufacturing in particular large quantities of finished goatskins. Tanning is done in all parts of the country.

Austria manufactures all kinds and qualities of goods. Hungary exports lower class leathers and good quality tawed sheep and goat. She imports her better qualities.

Southern Russia produces large supplies of green

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hides of horses, oxen, cows, and calves. The chief supply of pony skins comes from this country. These skins are all flint dried. The animals from which they are taken are usually from 14 days to 2 months old. The peasants eat the meat of the animals and use the milk. The skins are sold at the famous Nigni-Novgorod fair, 276 miles from Moscow, and shipped in bundles of 150. Russian colt is taken from animals from one to three years old and sold in bales of 40 skins each. The colts are herded and raised in the same way as cows or sheep. The fronts of Russian horsehides are sent to America, there being no demand there for Cordovan leather. The butts go to German and Polish tanners.

Belgium has a large trade in raw hides and glove leathers.

Danish calfskins are among the best produced in the world. They are good, plump skins with a fine grain.

In Italy the modern tanning district is Turin where the best leathers are produced; among them sole, waxed calf, box calf, patent, and glove leather. The methods employed are both the vegetable and rapid mineral tannage.

Mexico produces desirable cattle hides which are free from disease. The cattle are smaller than those of the United States, but they have a tough hide suitable

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for sole-leather. The Texan steers and cows are similar in this respect.

China produces a dry and wet salted hide similar in quality to South American hides. Horse hides are ex-.ported for Cordovan leather.

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# Chapter XX

## SUGGESTIONS TO SALESPEOPLE

**Arrangement and Display**

There is good opportunity for arranging an effective and artistic display of leather goods, because of the beauty of the material and the attractive variety of individual articles.

A confusion of articles should be avoided. Suitcases and traveling bags are displayed to best advantage where there is sufficient space to arrange them in symmetrical lines or in small groups.

Hand-bags which represent so many different styles and colors should be displayed with thought in regard to harmony of line, and color, whether hanging on stands or placed on shelves or on the top of the show case. A pad of rich purple moire silk or of gray velvet adds effect in the display of smaller articles arranged on them.

Fancy leather goods should be arranged in groups suggestive of their use. One article will in this way lead to the sale of another. Much taste and originality is necessary to arrange leather novelties in attractive and pleasing display.



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Any display, however well arranged, loses its effect unless the stock is well dusted and clean in appearance. The beauty of leather is its " life," fine grain, or finish, and clear color undimmed by dust or tarnished trimmings.

**Material**

The salesperson who understands the preparation of leather for its various purposes can talk intelligently and convincingly about the different kinds and qualities of leather and their suitability for the customer's use. Leathers for suitcases and traveling bags must naturally be of stronger quality than those for hand-bags or novelties whose wearing qualities are much less severely tested. Appropriateness of material should be considered, as the selection of a heavy walrus for a large bag and a pin seal for the smaller hand-bag.

A knowledge of the comparative wearing qualities of the textiles used for linings, or of a textile lining as compared with a leather lining for durability, makes a good point.

A sheepskin or some similar light leather if of good quality makes an excellent lining as does also a natural color linen. Heavy cotton canvas or twilled goods wear well but of course look less expensive. Silk linings, unless of pure silk and of heavy weave, are apt to show wear very soon.

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Colored leathers will fade under certain conditions. The salesperson acquainted with leather as a material can explain satisfactorily that it is no fault of the leather but the natural result.

**Manufacture**

A knowledge of how the suitcase or bag is made enables the salesperson to satisfy the customer as to the durability and suitability of the article to be selected. Hand-sewed bags stand the strain of wear better and also have a more finished appearance than the machine-sewed. The material of the frame determines to a large extent the weight of the article and its endurance of strain. The riveting of the frames, the working of the safety clasp and hinges, and the reinforcement of corners are all points of interest to the customer. In hand-bags the various mounts, nickel, German silver, and gun-metal all have their individual desirable qualities.

Acquaintance with the construction of bags also enables the salesperson to suggest methods of repair, or at least she may suggest to the customer what the manufacturer can and will do to repair. This is a service which will bring back many a customer.

**Points Desired in a Traveling Bag**

Any customer looking at traveling bags will wish to see:

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1. That it opens wide and stays open when desired.
2. That it keeps its shape by having wide gussets.
3. That the clasp opens and closes easily and will not burst open.
4. That it has good leather, a good lining, and is well-made in order that it wear well.
5. That it has good inside pockets.
6. That it is suitable for its use.

The advantages of initials on a bag are that the bag cannot so easily be exchanged or lost and they are sometimes considered a decoration.

**Suitability**

The salesperson is often asked to suggest a style, color, or finish in leather goods to be selected for some special occasion or purpose. The question of what kind of leather, cowhide or walrus, is most suitable for a traveling bag, and what variety of hand-bag harmonizes with a certain color or style of a costume, are of course matters of one's own choice, but the salesperson's judgment, if good, is often relied upon. The selection of gifts is also often made according to his advice. To be able to assist the customer in this way requires a familiarity with the prevailing styles, not only in leather goods, but in gowns, shoes, and gloves, and also a general knowledge of what is appropriate in bags and leather novelties.

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Much taste may be displayed in suggesting appropriate trimmings, as gun-metal for mourning bags or cut steel beads for bags to be used on semi-informal occasions. The suitability of a fitted bag may often be emphasized by calling attention to its fittings and their several uses. The fittings of one may make it unsuitable for the purpose, while those of another make it suitable.

**Suggestions as to Care**

The salesperson should know how to care for leather, not only to keep it in good condition and appearance while on sale, but to suggest to the customer how to do so after its purchase. The leather manufacturer knows that bags should be oiled from time to time to restore to the leather the dressing materials removed by the air and wear. He also knows that repeated wettings tend to make the leather stiff and less water-resistant and that even the heat of the sun in summer has a drying effect on the leather of bags and suitcases. If a cowhide bag has been scratched, he restores its appearance by redyeing it, or an alligator bag may be improved by revarnishing. A knowledge of how leather should be cared for enables the salesperson to make such suggestions to the customer. The necessity of oiling, and of drying properly then become

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evident. The principles upon which such suggestions and others are based are as follows.

**Effect of Water**

Though well-prepared leather is water-resistant, repeated wettings injure it, particularly if it is dried rapidly and by artificial heat. The oiling of leather keeps it water-resistant and restores the life taken out by moisture and drying.

**Effect of Heat**

Leather though tanned is still animal tissue, and as such is particularly sensitive to heat and other agencies detrimental to living matter. This is evident from the various instances in the preparation of the skin, such as drying the pelts, tanning and dressing, and drying the dressed skins, when the application of heat above a certain degree of temperature is made most carefully lest it render the skin inferior if not injuring it beyond remedy. Leather burns very quickly, especially when wet, and should never be placed near the fire. A temperature that the hand can bear, 120° F, is the hottest that can be safely applied.

Uneven or too rapid drying causes leather to curl up and become brittle in spots. The tanner takes a week to dry a single thickness and always prefers a slow, natural heat to a rapid artificial heat. For this

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reason it is obvious that leather goods should dry slowly and evenly in a current of natural air.

Chrome-tanned leather will stand a good deal of heat and will dry soft, but it cracks under old-fashioned shoe blackings.

**Effect of Oil**

The oiling of leather is one of the most important processes in its preparation. It softens, feeds and preserves the leather as well as increases its water-resistant properties. Naturally wear tends to eliminate much of this oil from the leather so that it should be judiciously replaced from time to time. In the dressing of the leather many oils are used, animal, vegetable, and mineral. Tallow, fish, or animal oils are said to be too heavy and do not seem so effective as a vegetable oil, like castor oil, which is a non-drying oil and will not prevent polish. Mineral oils, such as vaseline, if free from acid are not injurious, but are not so good as the vegetable. Rosin which exists in some vegetable oils tends to crack the leather. Too heavy and too much oil will destroy the gloss and darken the color of leather.

After any preparation except dry tannage, leather needs constant oiling to preserve the texture, life, and appearance. This is particularly true of oil-finished leathers, which crack if allowed to become too dry.

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Suitcases and bags should be washed with soapsuds free from alkali and oiled often with a soft rag and a pure oil. Good and suitable shoe pastes may often be applied effectively.

Even book leathers are the better for a little oil. It should be applied when they are slightly damp. Lanoline or vaseline are suitable.

**Effect of Light and Gas**

The oxidation which takes place in dyeing or even in drying changes the color of leather. This is due to the action of light on the coloring matter of the tanning and dyeing materials. For this same reason colored gloves, bags, and fancy leathers are subject to changes in color especially when damp and should be kept out of strong lights when on display. This change of color is particularly noticeable in the Morocco used for book-binding and upholstery, if tanned with bark of cassia, as is done in India, instead of sumac. It cannot stand the effect of light and gas fumes for a long period without becoming red and tender. If sulphuric acid has been used in tanning or dyeing, the change in the leather is even more noticeable. Sumac-tanned Morocco leather, however, will last for generations if properly cared for.

Gas which produces sulphuric acid by its combustion tends to dull or fade the colors.

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**Effect of Acids and Alkalies**

Leather being an animal substance may be injured by excess of alkali, acids, and all corrosives. Strong soaps should not be used in washing them. Acids used in polishes or pastes eat the leather.

**Pastes, Polishes, and Dressings**

Originally when all leather was bark-tanned and oil-finished a simple polish of lampblack and oil was all that was necessary, but today with the increasing variety of leathers and methods of tanning the matter of polishes becomes more involved, each variety and kind of finish calling for a certain kind of polish and of finer quality than the coarser, heavier leathers required. Leather pastes are convenient, but liquids are more effective for restoring faded color, as they fill in seams and give a fine finish. A combination of the two is good. Tan goods should be well cleaned before being waxed or oiled.

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# Chapter XXI

## CLASSIFICATION OF THE STOCK OF THE LEATHER GOODS DEPARTMENT

### Divisions

A. Suitcases and Traveling Bags
B. Hand-Bags and Purses
C. Fitted Bags, Toilet Cases, and Toilet Articles
D. Traveling Accessories and Automobile Supplies
E. Sewing Equipment, Fancy Boxes
F. Library Equipment and Brief-Cases
G. Dog Fittings, Belts, Trunk Straps

A — Traveling Bags and Suitcases

1. Kinds
   - Traveling
   - Kit
   - Gladstone
   - Cabin Top
   - Over-night
   - Shirt-bottom
   - Hold-all
   - Motor-Rail Bag
   - Suitcases
   - Week End Boxes
   - Hat Boxes
   - Bonnet Boxes
   - Fitted Bags and Cases



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2. Materials
   - (a) Leather
     - Cowhide (or Sole)
     - Horsehide or Coltskin
     - Pigskin
     - Seal
     - Walrus
     - Alligator
     - Crocodile
     - Sheepskin
     - Goatskin
   - (b) Textile
     - Silk
     - Cotton
     - Linen
     - Fiber
   - (c) Wood and Straw
     - Wicker and Matting
     - Basswood
     - Pine
   - (d) Metals
     - Iron
     - Steel
     - Brass
     - Aluminum
     - Silver

3. Finishes
   - Graining or Boarding
   - Glossing or Glazing
   - Embossing
   - Enameling
   - Waxing
   - Satin or Glove Finish

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4. Sizes
   Bags — 12 to 26 inches
   Suitcases — 18 to 28 inches

B — HAND-BAGS AND PURSES

1. Kinds
   (a) Women's
      Leather Hand-Bags
      Silk Hand-Bags
      Envelope Bags and Purses
      Coin-Purses
      Card-Cases
   (b) Men's
      Bill-Folds
      Wallets
      Coin-Purses
      Card-Cases

2. Materials
   (a) Leather
      Split Leather
      Calfskin
      Colt
      Deer
      Pigskin
      Sheep
      Goat
      Seal
      Walrus
      Alligator
      Kangaroo
      Wallaby
      Fishskin
      Lizard
      Snake

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(b) Textile
Silk
Linen
Cotton

(c) Metals
Gold
Silver
German Silver
Brass
Gun-Metal
Steel
Iron

3. Finishes

(a) Leather
Graining
Sueding
Russia
Morocco
Cordovan
Levant

(b) Textile
Taffeta
Satin
Grosgrain, or Faille
Brocade
Velvet

(c) Metal
Bright
Dull
Oxidized

C — Fitted Bags, Toilet Cases, and Toilet Articles

1. Receptacles
Toilet Cases

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Pullman Bags
Over-Night Cases
Motor Toilet Cases
Fitted Suitcases
Fitted Traveling Bags

2. Articles
Manicure Sets
Brush Sets
Mirrors
Combs

3. Materials
Leather
Fabrics
Bristles
Bone
Wood
Tortoise Shell
Ivory
Steel
Gold
Silver
Nickel
Celluloid

D — Traveling Accessories and Automobile Supplies

1. Kinds
Traveling Sets
Coat Hanger Sets
Collar Boxes and Pouches
Shirt Cases
Tie Hangers
Slippers
Traveling Pillows
Hot Water Bottles
Ice Bags

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Traveling Watches
Luncheon Cases, Picnic, and Tea Baskets
Thermos Cases and Bottles
Cups and Saucers
Plates
Knives and Forks
Sandwich Boxes
Bottles and Flasks
Drinking Cups

E — Sewing Equipment, Fancy Boxes

1. Sewing Equipment
   - Sewing Baskets
   - Sewing Bags
   - Sewing Boxes
   - Sewing Rolls
   - Thread
   - Scissors
   - Needles
   - Thimbles
   - Sundries

2. Fancy Boxes and Cases
   - Vanity Cases
   - Jewel Boxes
   - Safety Jewel Cases
   - Veil Cases
   - Pin and Hairpin Cases
   - Ribbon Cases
   - Handkerchief Cases
   - Needle Cases
   - Pin Cushions

F — Library Equipment

1. Kinds
   - Desk Sets

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Stationery Cabinets
Library Sets
Desk Baskets
Handy Boxes
Portfolios and Writing Cases
Recording Books and Pads
Brief-Cases, Music Rolls
Albums
Scrap Books
Picture Frames

G — Dog Fittings, Belts, Straps

1. Dog Fittings
   - Baskets
   - Collars
   - Harnesses
   - Leaders
   - Blankets
   - Sweaters
   - Muzzles
   - Goggles
   - Boots
   - Combs and Brushes

2. Belts and Straps
   - Belts
   - Watch Fobs
   - Watch Straps
   - Watch Bracelets

3. Materials
   - Leather
   - Textiles
   - Celluloid
   - Glass
   - China
   - Enamel Ware

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Aluminum
Paper
Wicker
Willow
Wood
Gold
Silver
Nickel
Brass
Bronze
Steel
Enamel

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# Part II—The Glove Department

## Chapter XXII

## INTRODUCTORY

### Description of Department

The Glove Department is usually given a prominent location near an entrance and in an easily accessible part of the store. It is often next to the ribbon, lace, and veiling departments. Its merchandise includes women's, misses', and children's kid and fabric gloves, and sometimes men's gloves. In large stores men's gloves are more likely to be with men's furnishings.

The counters are narrow to provide for comfortable fitting, padded with velvet, and equipped with the necessary special fixtures and counter chairs.

### Divisions of Department

The merchandise divides itself naturally into leather and fabric gloves. All leather gloves are included in the two kinds, glacé, or dressed leather, and suede, or undressed. The former designation is applied to those finished on the grain or hair side, and the latter to those finished on the flesh side of the skin, or with



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the grain surface removed. The gloves included in each kind are:

1. Leather
   - (a) Glacé (dressed)
     - French Kid
     - Lamb
     - Chevrette
     - Schmaschen
     - Cape
     - Washable Kid
     - Dogskin
   - (b) Suede (undressed)
     - Mocha
     - Chamois
     - Suede
     - Doeskin
     - Buckskin
2. Fabric
   - (a) Silk
     - Tricot
     - Milanese
   - (b) Cotton
     - Chamoisette
     - Lisle
   - (c) Wool
     - Fabric
     - Knitted

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## Chapter XXIII

# GLOVE LEATHERS

### Leathers Used for Gloves

The skins used in gloves are nearly all from different varieties of kid or goatskin, sheep or lambskin, and chamois. Real chamois, or antelope skin, is now almost never seen as the animals are practically extinct.

### Kid

Kid is used for the best grades of dress gloves. The finest are made from the skins of young goats procured near the districts of the world's most famous glove centers, Grenoble and Annonay, and known as "French National." These skins are taken from the highland animals and are of noticeably beautiful grain and superior strength. The skins from kids raised in the nearby lowlands and flat countries look well but lack the strength of the highland skins.

The difference in the quality of these kidskins is designated by the terms "chevreau" and "chevrette," chevreau being the skin of highest quality. It is taken from kids four or five weeks old, killed just a short time before the weaning age. After the young ani-



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mals begin to eat grass and vegetable matter the extreme fineness of the skin and its delicacy of texture are impaired. The skins toughen and are not so suitable for the finest kid gloves.

Chevrette is the skin of the older kids from the weaning age up to two months. It is an excellent quality for men's dress gloves, or for women's lightweight street gloves.

**Sheepskin**

"Sheep" is the term used to designate skins taken from these animals when over two months old. It is of good quality and well adapted to heavier dress or street gloves.

Besides "French National" skins, which make the finest kid gloves, there are skins from Italy, Germany, Austria, Belgium, Spain, Norway, Sweden, and Switzerland, and those of the South American ranches, from which good-quality gloves are made and called "kid" gloves.

Real sheep or lambskin when used for gloves is known commercially by a variety of names. Among these are cape, mocha, lambskin, and chamois.

**Sources of Lambskin**

Nearly all lambskin for gloves comes from Europe, although a small percentage is procured from other

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parts of the world. The finest lambskins come from northern Italy where the lambs are raised with the utmost care and have consequently a skin of fine grain and durability, very nearly like kidskins. The only appreciable difference between a fine lamb and a kid skin is that the latter is more elastic and so should wear better. (See page 6.)

**Cape**

"Cape" was the name originally applied to gloves made of heavy lamb or sheepskins from the regions about the Cape of Good Hope in South Africa. They are still used in the manufacture of cape gloves, but soft, pliable gloves in different weights, also known as "cape" gloves, are made from other skins. The name "cape" is now given to gloves which are tanned by a process which makes them particularly durable.

**Mocha**

Mocha is said to be the strongest glove leather. The glove took its name from Mocha, a seaport town on the Red Sea, whence the raw skins were first obtained. The mocha glove passes through more tanning and dressing processes than any other. When finished it looks like a doeskin or suede glove, but is in reality quite different. Mocha is not sueded, which means finishing the rough, flesh side of the skin, but "friezed"

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—paring off the smooth hair side surface giving it the rough appearance of the suede or chamois glove. This process is the manufacturer's means of preserving as much of the strength of the skin as possible, as the strongest part of the skin is naturally the outside.

**Chamois**

Chamois gloves were first made from the skins of the European antelope living in the Alps of Switzerland and in the Pyrenees. The animal is now so nearly extinct that genuine chamois skins are rare and the chamois of modern commerce is, in reality, like the so-called doeskins, only sheep or lambskins tanned in a special way. Lambskins are used to some extent to make the finer chamois gloves, but are not so durable as sheep.

**Suede and Glacé**

Suede leather is so called from its method of preparation. Skins having an imperfect grain are finished on the flesh side of the skin by the sueding process, which loosens or "fluffs" the already rough surface. Thus the inside of the skin becomes the outside of the glove. Glacé gloves are made from skins which are free from blemishes and therefore can be finished on the grain side. Suede gloves will not stand the same amount of stretching as the glacé, and, though good-

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looking at first, will not last so well, because the resisting part of the skin has been removed. High-grade suede and inferior mocha look very much alike. Because of their rough surface, suede and chamois gloves soil more readily than the glacé, or smooth-finished, gloves.

"Schmaschen" is a term applied to the lowest grade of leather made into gloves. It is the tanned skins of still-born lambs, or of lambs which live for only a few days. These skins are exceedingly tender because immatured and gloves made from them lack durability.

**Characteristics of Glove Leather**

Good glove leather is firm but soft and pliable, of a clear and even color, and fine finish. It should have "life,"—give slightly when stretched or pulled between the two hands or over the fingers, and should take its original shape again when the pressure is removed. This shows that the skin has been taken from a healthy animal and has been properly tanned and dressed.

**Preparation of Glove Skins**

The preliminary preparation of glove leathers is by:

Cleansing
Liming
Dehairing
Branning

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The large manufacturers of gloves buy their skins "in the raw," while the smaller ones get them "in the white," or dressed. The process of dressing is similar to that of skin leathers of the finer varieties.

The skins, when they arrive at the dressing factory, are spoken of as "in the hair." They are well sprinkled with a disinfectant. If they remain "stocked," or packed, they are shaken frequently to avoid overheating. At the factory they are sorted and classified according to the method of tannage and finish suited to each one. The heavier skins require more severe processes; the finer ones more delicate and painstaking treatment.

**Cleansing**

The skins are placed in clear cold water and are allowed to soak for a period of 48 hours, after which they are washed in running cold water and then again soaked. This softens them and removes all foreign matter.

**Liming**

They are then placed in concrete tanks sunk in the floor in a mixture of lime and water to be swollen and made "unhairable." The length of time they remain in this lime bath depends upon the kind of skin and its texture. It may be from 10 to 25 days. This

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is one of the most critical of all processes of preparation, since skins left in too long are so softened as to make inferior glove leather.

**Dehairing**

The skins are well washed after the lime bath and then are freed from the hair, fat, or muscular tissue adhering to the flesh side by a process similar to that used in preparing bag and other leathers. It is usually handwork in the case of fine glove skins, but heavier skins are dehaired by machine. The fleshing and trimming are done by scissors and blunt knives.

The skins are then again washed, this time in hot water and a special preparation, in a large tublike machine similar to a washing machine. This washing frees them entirely from the lime. They appear translucent by this time as they are almost pure gelatine. They are very delicate in this condition and must be handled most carefully lest they weaken in spots or tear

**Branning**

In this translucent, wet, and slimy condition the skins are first thrown across wooden blocks and deprived of any remaining fat by the scraping of blunt knives. They are then placed in a mixture of bran and warm water from which they are removed from time to time until properly softened, whitened, and dried.

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**Tanning Glove Leathers**

Glove leathers are tanned by:

Tawing
Chamoying
Formaldehyde tannage
Chrome tannage

**Tawing**

The process of tawing is similar in its principles to that of tawing leather. The skins are placed in a large drum containing a mixture of egg yolk, meal, and alum, which fills the pores, feeds the skin, and makes them into leather. The skins are left in this bath a day or so when they are hung up to dry tied in packs of six dozen each. It is best to allow them to dry naturally for 15 days to a month. As they are stiff and hard after drying, they are softened by soaking in clear cold water for a few minutes, wrung through wringers, and after drying again put through the staking process. This makes them soft, elastic, and workable.

The famous German "napa dip" method of tanning cape gloves was by alum tannage or tawing. This method, is, however, being supplanted by a chrome tannage introduced by American tanners, which makes a superior cape or street glove of washable quality.

Suede leathers are almost invariably tawed or

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tanned by the action of alum, salt, flour, and egg yolk to which olive oil or glycerin has been added. If they are to be pure white the oil is omitted and they are given a second dressing of French chalk or China clay.

For formaldehyde tanning, see page 40; for chrome tanning, see page 37-39.

**Chamoying**

Chamoying is a treatment with fats or oils (see page 41). Chamoyed leathers are often bleached with acids. Poorly bleached skins may have French chalk worked into them. Bleached skins will turn yellow, or revert to their original color, if left in the dark.

Glove leathers are often shaved or split after tannage. Much of the imitation doeskin and chamois is made of sheepskin splits.

**Finishing Processes—Doling**

After tanning, glove skins are "doled," or reduced to uniform thickness, which is in refined form the same as the process of breaking and staking the heavier leathers. The doler lays the skin on a marble slab and with a broad flat knife, sharp as a razor, planes or pares off the uneven or thick places. In this condition the skin is technically known as "in the white."

The skins are then dressed and dyed by processes

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similar to those used for other leathers of the same weight. See Chapters VIII and IX. Suede leathers take colors more easily than glacé leather because of their soft open texture.

### Finishing or Dressing

The finishing or dressing of glove leathers is one of the most important and delicate of the many processes.

The animal tissue removed by tanning is restored by the rubbing in of various suitable dressings, such as animal oils, olive oil, egg yolks, and filling and whiting agents, as flour. These nourish the skin as well as improve its appearance. The dressings may be rubbed in by hand or machinery.

Glacé leather is ironed and smoothed with a warm emery wheel and then with a smoothing wheel, which gives it a firm, lustrous surface.

### Treatment of Washable Leather

Washable gloves are so desirable for street and sport wear and for driving that manufacturers have given much attention to the perfection of washable leathers.

Chamois gloves were for a long time the only washable variety, because chamoying or oil tannage made the skins soft and water-resistant and at the

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same time preserved and softened them. (See Chapter VII.) Alum-tanned, or tawed, leathers are now made washable by giving them an oil dressing. Doeskin and buckskin are sometimes given this treatment. Formaldehyde tannage will also produce washable leather, but if the chemical is not entirely removed the skin will become brittle and tender.

The heavier leathers, such as mochas and capes, are chrome-tanned, and this process produces the best washable leather. Gloves made from this leather may be washed in water up to a temperature of 212° F., and with reasonable care the dyes will not run or streak. Chrome-tanned leather is also satisfactory because of its firm, even texture and durability. It is very little affected by heat, cold, or moisture.

For all washable gloves the water must be sufficiently cool not to harden and crack the skin.

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## Chapter XXIV

# MANUFACTURE OF LEATHER GLOVES

### Glove Patterns

In making gloves the first step is marking off the leather into square feet, one square for each glove. The expert cutters who do this work avoid those parts of the skin which have been scarred or damaged in any way during the tanning or finishing processes, as these would make the glove imperfect.

The next workman lays his pasteboard patterns on the squares in such a way as to escape minor flaws, secure elasticity and strength where they are most needed, and use the skin to the best advantage. Each piece of leather is dampened and stretched before cutting so that the "stretch" may be normal and the finished glove not pull out of shape when fitted on the hand.

The cutter tests the skin as he applies the pattern, allowing a little fullness for the flexing of the hand and also considering the kind of sewing to be used, as some types of seam require more leather than others. This process is called "tranking," and the pieces are



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known as "tranks." The workman is expected to cut a perfect glove from each square foot of leather. If he does not he is considered inefficient unless he can prove that the skin came to him in a damaged condition.

### Cutting

The tranked pieces are laid in piles and the gloves stamped out with metal dies. The dies represent all sizes and vary somewhat in the different makes of gloves, some having extra long or short fingers and others three lengths of finger—short, medium, and long. There are also dies for gloves with special cuts for the thumb and little finger and other variations, such as gussets between the fingers as well as at the base of the thumb. This accounts for one's having a favorite make or brand of glove.

All the various sections of the glove are cut with one movement of the die.

### Glove Parts

The thumb, facings, and smaller pieces have connecting edges or small strips of the skin attaching to each other in order that they may not be lost. These smaller pieces are known as "fourchettes," "quirks," and "hearts."



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Fourchettes are the narrow strips of leather on the inside of the glove fingers.

Quirks are the gussets set in the base of the thumb and often at the base of the fingers also.

Hearts are the staying pieces in the palm at the top of the glove opening.

The inside of the thumb in each pair of gloves is at this time stamped with a number so that they may not be mixed in passing from hand to hand.

While the cutting of nearly all fine gloves is done by machine the die is sometimes struck with a mallet. By this method of hand-cutting only a few pairs can be cut at a time and the cutting is not so accurate as when cut by machine. Heavy buck or driving gloves may be cut with a sharp knife or scissors after the pattern has been outlined on the skin.

**Decoration**

The backs of gloves are ornamented with fancy stitching which is always in the form of three divergent rows designated as "points." This decoration is called the "stitching," while the needlework upon the seams is called "sewing." When there are several rows of the stitching in each point it is called "embroidery."

Plain points resemble a simple round seam and the

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stitching is known as "filet." Paris points have a length of cable or overstitching bordered on each side by a row of plain stitching. Spear points have a spear-shaped finish at the wrist end.

Embroidery is called 3, 4, or 5 row embroidery according to the number of chain stitches in each point. (See Figure 9 for illustrations of these decorations.)

Machines are now used for nearly all of this work but a few varieties are still done by hand.

**Sewing**

The stitched or embroidered glove is given to the "maker" for the sewing. The thumb is first set in and closed; the fourchettes, quirks, and hearts are attached; and finally the fingers are seamed up.

Gloves are sewed in three different ways:

The overseam is made by placing the two edges of the leather together and sewing them over and over. It is also known as the "round seam" and the "cable seam."

The pique seam has one edge slightly lapped over the other and is sewed in a continuous straight stitch. "Full-pique" gloves are those which have all the seams sewed in this way, "half-pique" have the inner seams of the fingers overstitched and the outer ones pique-stitched. This is a popular seam for street gloves.

The prix-seam is made by bringing the edges to-

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gether as in the overseam, but they are sewed through and through with a continuous stitch, the sewing showing on both sides of the seam instead of on one as in the lapped, pique seam. The prix seam is suitable for heavy leathers.

A few round seam and prix seam gloves are sewed by hand. (See Figure 9 for illustration of these seams.)

**Finishing**

The glove then has the facings attached and the clasp or buttons put on. It is then ready for the inspector who examines each seam to see that it is well finished.

**Laying-Off**

The completed gloves are then carried to long tables from which steam-heated brass hands project at an acute angle. Each glove is slipped over one of these and drawn to shape, the thumb being stretched on a separate form. When removed the glove is smooth and shapely. The heat and stretching have softened the leather, opened up the seams, and given the glove a finished appearance.

Glacé gloves are submitted to a final polishing with luster containing wax and oil which is applied with

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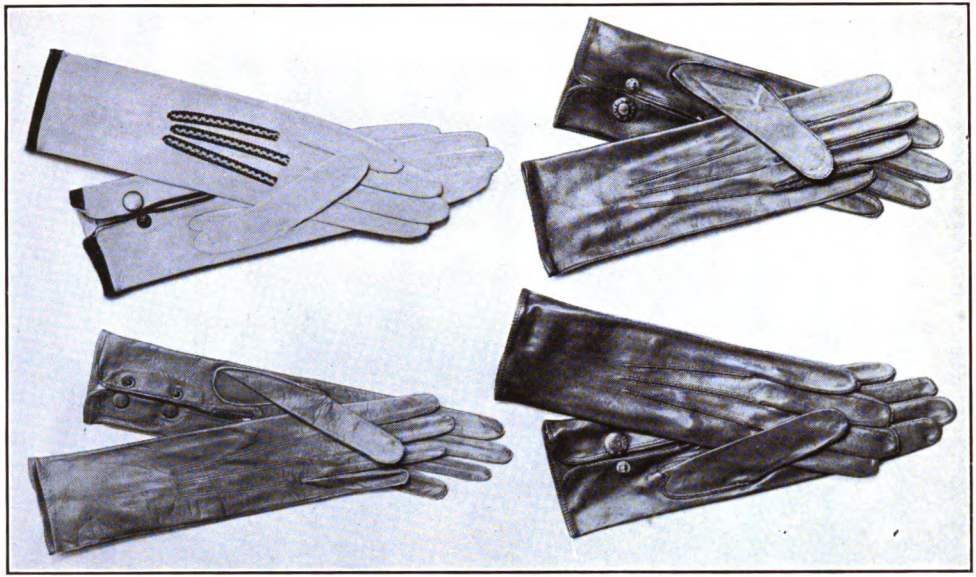

Courtesy of Louis Meyers & Son

Figure 9. Examples of Leathers, Stitching, Sewing, Embroidery, and Seams of Ladies' Gloves

*Top Left*—Lambskin, hand-embroidered, pique, overseam stitch
*Top Right*—One-clasp, double draw-back, prix seam, washable cape
*Bottom Left*—Paris-point back, two-clasp, overseam, French kid
*Bottom Right*—One-clasp, Paris-point back, full pique, washable cape

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a plush wheel. The emery wheel is used to refine the grain.

Suede gloves are fluffed with an emery or buffing wheel. Again, the gloves are inspected, matched, banded, and boxed according to color, style, and size.

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## Chapter XXV

## FABRIC GLOVES

### Materials

Fabric gloves may be of silk, cotton, or wool.

### Silk

Silk is made from the filament spun by the silk worm, which is cultivated chiefly in China, Japan, and Italy, though India, France, Spain, Austria, Hungary, and Russia also produce "raw," or unmanufactured silk. Silk worm cultivation has been attempted in the United States but has never been commercially successful. Silk manufacture is, however, one of our great industries.

Raw silk is imported in untwisted skeins before the gum has been removed. After it has been "boiled off," thrown, or twisted, and dyed it is returned to the glove manufacturer wound on spools. (See "Silk Manual.") Japanese silk is preferred by glove manufacturers because of its strength, evenness, and elasticity.

### Cotton

Cotton is made from the seed pod of the cotton plant, which is cultivated in the United States, South



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America, Egypt, and India. Sea island cotton, the finest quality, is raised in the southern part of the United States near the coast. Egyptian cotton is of a similar quality with long, strong, and lustrous fibers.

The cotton fibers must be straightened and separated by combing and carding, spun into a continuous thread, bleached, and dyed. Before being sent to the glove manufacturer it is usually woven or knitted into a fabric. (See "Cotton and Linen Manual.")

Lisle thread, which is used extensively in making gloves, is spun in a moist atmosphere, singed or gassed to remove short ends, and given a hard twist. This treatment makes it strong, lustrous, and elastic.

**Wool**

Wool is the hair or covering of sheep and is grown in many countries. Australian wool is the finest variety but the United States is also a great producer of raw wool.

It is prepared for manufacture by processes similar to those used for cotton, that is, it must be cleansed, carded and combed, spun, and dyed, coming to the glove manufacturer in the form of yarn or as a woven or knitted fabric.

**Manufacture of Knitted Fabrics**

Knitted fabrics are made by interlacing the loops of a single continuous thread or group of threads. They

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are much more elastic than woven fabrics and therefore better adapted for gloves or stockings, where smoothness and perfection of fit are of the first importance.

There are two kinds of knitted silk fabrics: tricot and milanese.

Tricot (French for "knitted") is made on a machine having only one set of needles on the guide bar, each stitch being looped through the corresponding one in the previous row. The fabric stretches equally in both directions.

Milanese, or Jersey, silk is knitted on a more intricate machine, with but two sets of needles on the guide bar, which permit the thread on the needle bar to knit the new stitch into one either to the right or the left of the corresponding stitch in the previous row, thus producing a triangle-shaped mesh supported on all sides. The fabric is very firm and durable but is more expensive than tricot, as it requires more silk. It can be distinguished by its even, satiny texture, and by the fact that it stretches more in the width than in the length.

**Cutting and Sewing**

Several thicknesses of the knitted fabric, which is knitted in strips of such length and width as to cut the gloves with the least possible waste of material,

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are stretched together upon a long table and securely fastened on the sides to prevent slipping. The pattern is laid out, or marked, and cut through the series of thicknesses with dies or electrical cutting machines.

Woolen gloves and mittens are sometimes cut from knitted fabrics but many of them are made on circular knitting machines which shape them to fit the hand.

If the gloves are to be embroidered this is done on an embroidery machine similar to those used for making Swiss embroidery. The stitching and sewing of silk gloves differs from kid glove making in only one particular, the double tipping of the fingers. This is done by a machine which catches the edges of the extra piece into the material on the inside of each finger, binding it down with close-set overstitches.

The gloves are finally shaped over hot "boards," or hand-shaped forms, which stretch them and bring out the luster of the material.

**Characteristics of Fabric Gloves**

Silk gloves are beautiful and give one a sense of daintiness. They are cooler and more easily laundered than kid, and keep clean longer than cotton gloves.

Cotton gloves launder even better than silk. The lisle gloves have almost superseded other varieties of cotton gloves because of their superior strength and elasticity, although heavy cotton gloves may be found

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in inexpensive grades. Good lisle gloves may fit as well as silk and launder better.

Chamoisette, chamoisuede, suedine, doette, chamois, and suede lisle are names given to a type of fabric gloves made to look like chamois skin or other sueded leathers. They are made of lisle thread knitted in a plain or fine rib pattern, sized with a special preparation, and "napped," or fluffed up, on the surface to give the soft appearance of suede leather. This type of fabric glove has been very popular. (See Figure 10.)

Woolen gloves are warm and light and especially adapted for children's wear and for driving, golf, or other sports.

### History of Knitting

Knitting machines are a comparatively late invention. Weaving by means of simple hand-looms was practiced by primitive people long before there were any historical records, and complicated looms were used by the Greeks, Egyptians, and Chinese, but knitting does not seem to have been an ancient industry.

As far back as the fifteenth century the Scotch knitted caps and stockings by hand, and in 1529 a knitting machine called the "stocking frame" was invented by William Lee, an Englishman. Since then many improvements have been made and now there are many kinds of knitting machines—flat fabric,

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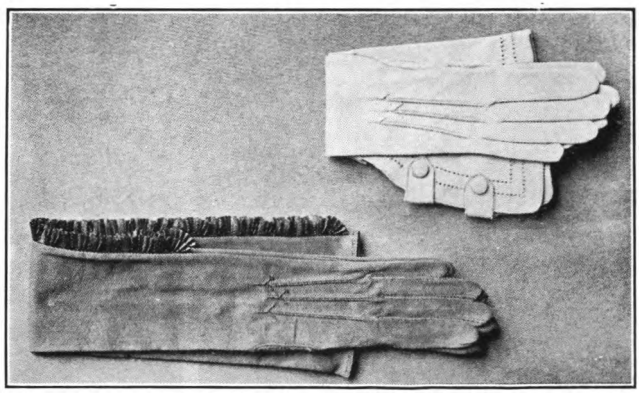

Courtesy of Quality Silk Mills

Figure 10. Sueded Fabric Novelties

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circular, and adjustable, as for gloves and hosiery. Mittens were first knitted on a circular machine similar to the stocking frame. Later adjustments of the machine were made so that the hand might be shaped and the fingers knitted separately.

Before the war the foreign centers of knitting manufacture were in Saxony and other parts of Germany. The United States obtained large quantities of fabric gloves and mittens from this source, but domestic manufacture has been stimulated by the check to foreign trade.

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## Chapter XXVI

# MEN'S, CHILDREN'S, AND SPECIAL LINES OF GLOVES

### Men's Gloves

Men's gloves are made in regulation "loose pattern" cuts. The "cadet" is a short-fingered glove.

Browns, grays, and natural-color chamois, are the popular colors for street wear, gray silk for warm-weather afternoon wear, and white or pearl for dress.

The sewing, except for a very fine dress glove, is pique or prix seam.

Cape, mocha, and buckskin gloves are the most suitable gloves for street wear, while kid is the correct evening glove.

Many of the heavier motor driving, and working gloves and mittens, are manufactured in Germany, Austria, and Canada. They are made of horsehide, or heavy calf or sheep, and are prepared with the chrome tannage so that they retain their softness after exposure to cold and dampness. They may be lined or unlined and are sewed on a special lock-stitch machine which prevents ripping.

Auto and driving gloves often have "grip" palms,



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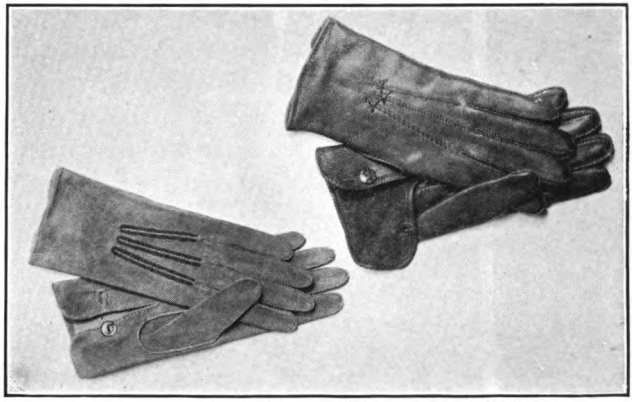

Courtesy of Louis Meyers & Son

Figure 11. Examples of Leathers, Stitching, Clasps, and Seams of Men's Gloves

*Left*—Button and buttonhole gray mocha street gloves
*Right*—Fleece-lined, one-piece, washable cape, one-clasp, spear-back driving glove

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that is, additional layers of leather as a protection against the extra wear on those parts of the gloves. For summer this style of glove is often made with lisle back and "grip" palm of leather. A silk glove with leather palm is a popular summer driving glove as it is cool and comfortable. It is of various staple colors. Driving gloves are sometimes of washable kid.

A popular golf glove is made of doette or strong sheepskin with the left palm of kid and fingers half-length. The palm is ventilated by means of openings. See Figure 11 for illustration of these various points.

**Misses' Gloves**

Misses' gloves in both kid and fabric, are not merely little gloves marked with misses' sizes, but gloves cut to fit misses' hands. The fingers are shorter and the hand broader.

**Children's Gloves**

Children's gloves are sometimes sold in the Glove Department where special counters and chairs are provided. In many cases, however, they are not shown in the women's glove department, but rather in a special Children's or Junior Department carrying children's dresses, shoes, etc.

The manufacture of children's gloves is becoming a recognized and highly specialized branch of the

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glove industry with a large variety of materials, cuts, styles, and colors.

Long glacé and silk gloves for children are shown in colors to match party costumes. Washable fabrics and leathers similar to those employed for women's gloves are also popular for children's gloves. The mocha, chamois, and cape, similar to the man's street wear gloves, are especially suitable for boys. Knitted and leather mittens in a variety of colors and styles particularly in the smallest sizes, are popular for both sport and service wear.

**Mitts**

Mitts are found in some glove departments. There are two styles; short and long. The materials may be lace or silk. The lace is often handmade or "real," such as chantilly or rose point, but it may be a machine-made lace, such as filet or plat val. Silk mitts of knitted fabric are plain or embroidered and may be either tricot or milanese in medium or heavy weight.

**Lined Gloves**

Both leather and fabric gloves may be lined. The making of linings is a specialized branch of the industry. Glove silkmills turn out fabrics of even and durable quality especially adapted to linings, woolen-mills manufacture the woolen linings, fur-dressing

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factories fur linings, and special leathers are prepared for glove lining. Large glove factories prefer to buy the raw material and make their own linings, as they do their other supplies.

Linings, then, may be silk, cotton, wool, fur, or leather, and in rare cases linen. If silk, it is either milanese or tricot; if cotton, mercerized or lisle. Wool linings are either soft, loosely felted wool or a knitted wool fabric, well napped, that is, a loosely woven or knitted fabric with the loose ends of fiber pulled out by a coarse-toothed machine. It is similar to a wool blanket in which the nap provides softness and warmth by friction. These linings are called "fleece" linings. Lamb's wool is the soft, pliable pelt of a lamb, prepared like fur.

The furs used for glove linings are usually the cheaper furs as rabbit, coney, and squirrel, which are also used for glove cuffs and trimmings. Astrakhan, a woolen cloth woven and finished in imitation of Persian lamb, is also used for this latter purpose. Otter and beaver make durable cuffs and trimmings for gloves.

The leathers suitable for glove linings are chamois and lamb, as they are soft, pliable, and porous. They are also cheaper and more plentiful, made as they are in most cases from split sheepskins or from parts of glove skins unsuitable for the glove itself.

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Linings may be cut out by glove patterns and sewed up with the gloves, or they may be "slip in" or "seamless" knitted, that is, knit on a special circular glove-knitting machine which does away with all seams. This makes a smooth and comfortable lining.

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## Chapter XXVII

## HISTORY OF GLOVES

### Antiquity of Gloves

We find traces of the use of gloves in very early days but only for ceremonial or formal occasions. The Romans wore gloves as an ornamental part of their dress and the Greeks to protect their hands when doing certain kinds of work.

In the days of chivalry heavy gauntlet gloves were used as a part of the knight's protective armor and the leather was often covered with thin, flexible plates of steel.

The throwing of a glove at the feet of an enemy or rival was considered a challenge to mortal combat. On the other hand a knight carried his lady's glove on his spear as a symbol of devotion and as a talisman to protect him in battle.

Queen Elizabeth and her court wore very elaborate gloves ornamented with gold and silver embroidery and fringe and made with insets and ruffles of lace. These gloves were also perfumed, but we should consider them exceedingly crude and clumsy in shape.



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Gloves were also worn by popes and church dignitaries as symbols of their office. At first these gloves were white, but afterward were so gaudy in color that they were prohibited.

During all this period gloves were considered one of the signs of royalty or nobility and like laces, furs, and jewelry, were not permitted to the common people.

**The Modern Industry**

The modern glove industry had its origin in Grenoble, France, which has been called the "cradle" of the glove industry. There were glove guilds as early as 1339, and by 1691 the Corporation of Glove Makers was strong enough to hold in check the rival towns of Lyons, Annonay, and Millau and later the competition in England, Germany, Austria, and Switzerland.

The glovers of Grenoble have been an important factor in the political and social life of France as well as being at the center of one of the great French industries. In the French Revolution they gave men and money to help the people's cause, disregarding the clergy and the nobles who had been their patrons.

During the late World War there were so many Grenoble men at the front that the industry was practically suspended, as the women and children were only able to care for the less skilled branches.

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**Introduction of Machinery**

Until the middle of the last century gloves were cut with shears and sewed by hand. The industry was revolutionized by Xavier Jouvin who is said to have studied the hands of patients in the Grenoble hospital and reduced the many patterns to 32 different sizes which were then reproduced in metal dies. With the introduction of these dies a number of gloves of standard sizes and shapes could be cut at one stroke of the machinery instead of being slowly clipped out with shears. The invention of a glove-sewing machine in 1847 gave another impetus to the industry and cheapened the process so much that the price of gloves was brought within the reach of people of moderate means.

**Glove Centers of France**

Grenoble is still the center of the world's glove industry. Its former rival, Annonay, has become a great center for the dressing of glove leathers, and, with the world's best kidskins grown in the mountains of southeastern France, the highly skilled workmen of these two centers have been able to keep their enviable position.

French tanners are conservative and in the smaller centers still follow the old methods, but the larger establishments have modern machinery. The "French

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National" skins are the standard for fine glove leather.

Besides the manufacturers located around Grenoble, Paris, Millau, St. Jamien, and other French cities are important glove centers.

### Glove Centers in Other Countries

Worcester and Martock are centers of glove manufacture in England and are justly famed for the quality of their heavy gloves. Nothing can be more satisfactory than English "dogskin," gloves made from the skins of South African sheep.

Germany and Austria also produce heavy leather gloves and Germany makes fine fabric gloves. Brussels, Belgium, is another glove center.

South Amercia is developing the dressing of heavy glove leathers, Buenos Aires being the center of this industry.

### Glove-Making in the United States

In the year 1760 Sir William Johnson, a Scotch glove manufacturer, came to Fulton County, New York, bringing with him a group of skilled workmen from the glove guild in Perthshire. This was the beginning of Gloversville.

Men cut the gloves with shears and women took them home to be sewed by hand. A skein of silk was in each package for embroidering the vine on the back

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of the gloves. They were pressed between pasteboards and returned to the factory. In 1809 trade had been established as far as Albany and in 1825 a lumber wagon full of gloves was taken to Boston.

The industry has developed rapidly since that date. Foreign skilled workmen have been encouraged to settle in the district and now the towns of Gloversville and Johnstown, both in Fulton County, supply over one-half of the gloves made in the United States. The whole region is given to glove-making. Chicago is the second important center of the glove industry.

The United States has developed chrome tanning and other processes for washable leather and has perfected glove-making machines.

American manufacturers, in addition to native leathers, also import skins from England, Italy, Belgium, and South America.

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## Chapter XXVIII

# KNOWLEDGE AND CARE OF GLOVE STOCK

**Knowledge Which a Glove Salesperson Needs**

A knowledge of glove leathers, the qualities and characteristics of each, and their relative durability and serviceability is necessary to good salesmanship in a glove department. Familiarity with the different cuts and their suitability to hands of various shapes and sizes is equally important.

"Sizes" are only guides not to be used without testing the glove on the hand, as some makes "run large" and some small and they differ in length of finger, width of hand, and other special ways, which make them either suitable or else quite wrong for a certain type of hand. Care in selecting the size which fits a customer's hand (rather than the size she may have been wearing) will sometimes make necessary an explanation of the reason that the old glove was torn out or split. A look at the old glove will often reveal its misfit.

Colors which are to be worn in daylight should be seen in daylight and evening gloves under artificial light, as glove colors are among those most affected by differences in light.



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A glove salesperson needs a strong back and firm capable hands combined with exquisite neatness and daintiness.

**Knowledge of Prevailing Dress Fashions**

A glove salesperson should also know the prevailing fashions in gloves suitable for special occasions, as customers often ask her advice, while, on the other hand, "people who know" like to be shown the right thing at once. In one store, this seeking of fashion knowledge is divided from time to time. For example, one glove saleswoman will watch the fur fashions very closely; another the style in suits and coats; still another will make a little report on shoe fashions—all contributing to the general fund of fashion knowledge.

In this connection, it is especially important that glove colors match the best selling suits and shoes. This requires close and continual study on the part of everyone, including the buyer, head-of-stock, and salespeople.

Garment styles, especially sleeves, have a strong influence on the length and cut of gloves. Knowledge of the fashionable in clothes and shoes will help in suggesting harmonious combinations of gloves with costumes.

Suggestive selling is not only natural in a glove department but of real service to the customer because

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of the relation between gloves and the rest of the costume. Suggestions as to mending and cleaning gloves are often welcomed.

### Care of Glove Stock

Gloves should be handled carefully and kept wrapped in tissue paper in dust-tight drawers. The clasp or bottom sides should be kept together with tissue paper between. Tissue paper containing strong chemicals will injure the color of gloves.

The arrangement of stock should be systematic in order to avoid delay in finding the sizes, colors, or makes wanted. For the same reason forward stock should always be complete. After fitting, great care should be taken in reshaping, matching, and wrapping, and if a glove has been slightly injured in fitting or soiled in handling it should be cleaned and repaired at once. Art gum will quickly remove small spots. Gloves are affected by extremes of heat or cold, strong light, and dampness and should be guarded against all of these. Colored gloves fade quickly in a strong light and are also affected by gas on account of the sulphuric acid it contains.

### Importance of Correct Fitting

The fitting of kid gloves helps materially to reduce the amount of returns and a glove properly fitted not

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only looks better but wears longer. A glove saleswoman should be able, after looking at a hand, to tell whether the glove fingers should be long, short, or medium length and whether the hand is slender or requires extra fullness in the palm. It is well to look at the old gloves, especially if the hand to be fitted is unusual.

**Selecting the Proper Glove**

In selecting the nearest size in stock for the hand to be fitted one must not only observe the differences in the "cuts" of different manufacturers but also the quality of the leather. The better gloves are more elastic and therefore will more readily take the shape of the hand.

There are certain general principles which may act as a guide to correct fitting.

1. Normal hands take regulation sizes. By a "normal" hand is meant a shapely hand, neither thick nor thin, with fingers of medium length.

2. A hand with soft, compressible flesh takes a size or half-size smaller than the regulation ones. A stout firm hand needs a very elastic glove.

3. A hand with solid flesh and long thick fingers with large heavy joints requires a glove larger than regulation size. A thin hand requires a long narrow glove.

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4. A soft hand with short chubby fingers requires a special short-fingered glove.

5. A short broad hand is frequently best fitted in a misses' size; for street wear, in a boy's glove.

In selecting the glove most suitable as to stitching and sewing for individual hands, the pique seam or the overseam is most desirable for the short, plump hand, as the prix seam accentuates the shortness and thickness of the hand. The overseam is naturally most suitable for light-weight and dress gloves, the pique for medium weight or street wear. The prix seam is heavy and substantial in appearance and hence appropriate for driving, sport, or walking gloves.

**Fitting the Glove**

To fit the glove the saleswoman should have a clean dry hand and the gloves should be stretched and powdered. The right hand should always be measured and the right glove selected for fitting unless for some reason the customer prefers the fitting of the left hand. This may be because she is left-handed which naturally makes this hand the larger.

After seeing that the customer is comfortably seated, that is, sitting sideways, the elbow properly protected on the cushion or pad and the hand powdered, draw the four fingers on first and then the thumb, having the seam of the thumb over the middle of the thumb

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nail and all seams and stitching straight. A light but firm touch is needed with no waste motion to soil the glove unnecessarily or irritate the customer.

Gloves should never be forced on but gradually drawn and shaped over the fingers—never pushed down between the fingers. The glove should be held by the center of the back and never by the corners. At the wrist it should be carefully stretched until the clasp meets. If it will not meet there comfortably it is too small or too short and is liable to tear out when first worn. The clasps should be well down on the wrist to stand the test of use.

After fitting, the gloves should be gently removed by being drawn off backwards, or wrong side out, and never pulled off by the finger tips. They should be turned the right side out and reshaped while yet warm and moist from the hand, then carefully wrapped and placed again in the proper box or drawer. All gloves not in perfect condition should be placed in a separate drawer and repaired and made salable as soon as possible instead of being brought out time after time for fitting only to be found imperfect.

When sending out gloves on orders the gloves should be carefully stretched and liberally powdered.

**Styles**

Staple styles in misses' and women's kid gloves are

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long, 8 to 30 buttons or clasps, and short, 1, 2, or 3 buttons or clasps. The 16-button is the regulation elbow length reaching just above the elbow, while the 12-button length comes just below. Long fabric gloves are 12, 16, and 20 buttons, and short, 1, 2, and 3 clasp. The 8-button length comes just above the wrist.

Gauntlet gloves are gloves with cuffs. They are longer than wrist lengths and come in both soft and stiff cuffs. They are used for driving and sport wear.

### Sizes

Women's and misses' kid gloves come in quarter-inch sizes from 5½ to 8½ and in short, medium, and long finger lengths. Fabric gloves come in half-inch sizes and are usually sold a half size larger than kid, as they are not so elastic.

Men's gloves come in sizes 6¾ to 10. Children's glove sizes run from 0000 to 7. As the little hand is soft and plump, a fine-textured leather fits best and gives the most comfort. The hand should not be fitted too closely as it is changing in shape and size, and also needs more freedom than a grown person's hand.

### French System of Sizes

The French system of glove sizes is called "blind" because the customer does not understand it and there-

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fore is not likely to insist on a size too small for her hand. Since gloves differ in elasticity and all makes do not run exactly the same, a certain size may be right in one glove and not in another. Hands also have been known to grow larger. The blind sizes give the salesperson an opportunity to measure a hand and fit it correctly.

COMPARISION OF AMERICAN AND FRENCH SYSTEMS

| AMERICAN | FRENCH |
|---|---|
| 5½ | Y.526 |
| 5¾ | Z.525 |
| 6 | A.624 |
| 6¼ | B.623 |
| 6½ | C.622 |
| 6¾ | D.621 |
| 7 | H.720 |
| 7¼ | I.719 |
| 7½ | K.718 |
| 7¾ | L.717 |
| 8 | M.816 |

A is 6, B is 6¼, C is 6½, D is 6¾, H is 7, I is 7¼, K is 7½, L is 7¾, and M is 8. A, B, C, and D are 6, 6¼, 6½, and 6¾.

The figures 624 that go with A, 623 with B, etc., are metric measurements used in olden times in France. French sizes *are* different from the old plain sizes. They are *accurate*.

The old sizes were "favored" more or less—in the

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attempt to get large enough gloves on women's hands. Each manufacturer's measuring is different from the others'.

Never use any but a French size measure in selling gloves. The reason for this is simple. A slender hand may be very wide. A narrow hand may be very fat and thick. A glove must fit not only the width of a hand, but, most important, the bulk. A measure must go clear around a hand to measure this bulk.

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## Chapter XXIX

## CARE AND CLEANING OF GLOVES

### Care of Gloves Not in Use

The durability and appearance of leather depends very largely on the care which is given it. Glove leather, being thin and soft, is particularly liable to abuse through rough or careless handling.

Gloves should be removed by drawing them off backwards or wrong side out by the wrist and never by pulling them off by the finger tips. They should then be turned right side out and gently pulled into shape while still moist, folded carefully and laid flat with the palms together in a box or drawer free from dust. White or light-colored gloves should be still further protected by wrapping them in fresh tissue paper. Paper loaded with chemicals will turn white gloves yellow. Blue paper best preserves the color.

If gloves are noticeably damp from perspiration they should be allowed to dry before being put in a closed box and they should be thoroughly dry before being worn. As leather needs oil, the natural oil of the hands will help to keep it in good condition and gloves should not be left for a long time unworn, as they



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will become dry and inelastic and tend to crack or break when stretched on the hand.

Olive or castor oil or vaseline (if free from acid) should be rubbed on heavy driving gloves when they are not in use. This softens and feeds the leather as well as making them water-proof.

**Cleaning**

Small spots on light colored kid gloves may be removed with art gum or ether and the fingers may be cleaned with preparations similar to Carbona, which, however, will soon turn white gloves yellow.

Non-washable leathers may be cleansed with gasoline warmed in hot water and rubbed dry on the hand with a soft cloth. As gasoline is very inflammable this cleaning should never be done near a fire or flame of any kind, or in a closed place where the fumes will be confined. If the precaution is taken to have a current of air, preferably out of doors or at an open window, one may feel safe in using it. The gloves should not be hung near a flame while still saturated with gasoline as they will readily catch fire, but a gentle heat will help to remove the unpleasant odor.

**Washing**

Washable leathers should be washed in tepid water with a mild soap (containing no free acid or alkali).

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Soft water is preferred to hard. Warm milk containing the beaten yolk of an egg (one egg to each pint) is sometimes used with satisfactory results.

Some soap should be added to the rinsing water (especially for hard water) to restore the oil which has been removed from the skin by washing.

Chrome-tanned leathers may be washed in hot water, but not suede or chamois. A mild heat will not injure the leather but it will become dry and brittle if strong artificial heat is used or if, on the other hand, the air is very damp so that it dries too slowly. It is best to dry them slowly in a current of natural air.

Silk gloves should be washed in tepid water with a pure mild soap. They should not be wrung or crushed but pressed in a dry towel and pulled gently into shape when partly dry.

When white silk gloves have become slightly yellow they may be bleached by holding them over sulphur fumes. Hot water, strong soap, or a hot iron will always turn silk yellow.

Cotton or lisle gloves may be washed like any other fine cotton goods, but chamoisette must be washed in tepid water because of the rubber contained in the material. For the same reason they should never be ironed. Brushing up the nap restores the velvety appearance of sueded cotton gloves.

Woolen gloves and mittens must be washed with



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care, like flannels. The water must not be too hot nor cold, but luke warm. A little soap should be left in the rinsing water. They should never be wrung or twisted but have the water pressed out of them.

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# Chapter XXX

## CLASSIFICATION OF STOCK OF THE GLOVE DEPARTMENT

### Divisions

A. Women's Gloves
B. Misses' and Children's Gloves
C. Men's Gloves

A—Women's Gloves

I. Kid

1. Kinds

(a) Glacé

French Kid
Lamb
Chevrette
Cape
Washable Kid
Schmaschen
Dog

(b) Suede

Doeskin
Chamois
Mocha
Washable Suede
Buckskin



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2. Sizes
   (a) Numbers: 5½ to 8½ (in ¼ inches)
   (b) Finger Lengths: Short, Medium, Long
3. Styles
   (a) Long: 8 to 30 Buttons
   (b) Short: 1, 2, and 3 Buttons or Clasps
   (c) Mousquetaire, Grip, Auto, Gauntlet, Novelty
4. Colors
   (a) Black and White
   (b) Browns
   (c) Grays
   (d) Navy
   (e) Green
5. Decoration
   (a) Stitching
      Filet
      Paris Points
      Spear Points
      3, 4, or 5 Row Embroidery
   (b) Sewing
      Round Seam
      Pique Seam
      Prix Seam

II. Fabric
1. Kinds
   (a) Silk
      Milanese
      Tricot
   (b) Cotton
      Lisle

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(c) Wool
Golf Gloves
Mittens

2. Sizes: 5½ to 9 (in ½ inches)
3. Styles
   (a) Long: 12, 16, and 20 Button
   (b) Short: 1, 2, or 3 Clasp
4. Colors: Same as kids
5. Decoration
   (a) Stitching: Same as kids
   (b) Novelties

B—Misses' and Children's Gloves

1. Kinds, Colors, Decorations (see "Women's Gloves")
2. Sizes: oooo to 7
3. Styles: Short and Long

C—Men's Gloves

I. Kid

1. Kinds
   (a) Glacé
      Kid
      Cape
      Dog
      Horse
   (b) Suede: Same as women's gloves
2. Sizes
   (a) Numbers: 6¾ to 10
   (b) Finger Lengths
      Regulation
      Cadet

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3. Styles
   (a) 1 Button or Clasp
   (b) Gauntlet, Motor, Working, Driving, Golf
4. Colors
   (a) Black and White
   (b) Browns
   (c) Grays
5. Decoration
   (a) Stitching
      Paris Points
      Spear Points
   (b) Sewing
      Pique Seam
      Prix Seam

II. Fabric
1. Kinds
   (a) Silk
      Milanese
      Tricot
   (b) Cotton
      Lisle
   (c) Wool
      Golf Gloves
      Mittens
2. Sizes
3. Colors
4. Decoration

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# Appendix

## Books for Reference

The Manufacture of Leather, Hugh Garner Bennett. Van Nostrand, $4.50
The Making of Leather, H. R. Proctor. Putnam, $1
The Art of Tanning Leather, Kennedy. (Out of Print)
Text Book of Tanning, H. R. Proctor. Spon
Leather Trades Chemistry. S. R. Trotman. Lippincott, $4.50
Treatise on the Leather Industry, A. M. Villon. Van Nostrand, $10
Leather Manufacture, A. Watt. Van Nostrand, $4
Shoe and Leather Lexicon, Boot and Shoe Recorder Publishing Co. (Boston)
Commerce and Industry, J. Russel Smith. Holt, $1.40
The Wonders of Science in Modern Life, Henry Smith Williams. Funk & Wagnalls
Dyes and Dyeing, C. E. Pellew. McBride, Nast & Co., $2
Artistic Leather Work, E. Ellen Carter. Spon & Chamberlain, $1
The Decoration of Leather, G. DeRécy. Dutton, $3
Nitrocellulose Industry, E. C. Worden. Van Nostrand, $10
Leather Manufacture (Trade Journal)
Trunks, Leather Goods, and Umbrellas (Trade Journal)
Paper Mill and Pulp News (Trade Journal)



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# INDEX

## A


ACIDS AND ALKALIES, effect on leather, 154
ALBUMS, 128
ALLIGATOR, 4, 10, 71, 75
ALUM TANNING (See "Tawing")
AMBER, 116
ANILINE DYES, 60
ANNONAY, 165
ARM-BOARD, 73
AUSTRALIAN WOOL, 183
AUTOMOBILE SUPPLIES, 123


## B


BAG-MAKING (See also "Handbags")
  attaching to frame, 84
  corners, 83
  finishing, 85
  lining, 84
  outside, 82
  sizes, 80
BAGS,
  fitted, 105, 110
  materials, 82
  styles, 80
BALMORAL BAG, 80
BARK, 26
BASKETS, DESK, 127
BATH DYEING, 57
BLEACHING, 43
BLUE, THE, 39, 59
BONNET BOX, 86, 90
BOX CALF, 73
BRANNING, 171
BRASS, 98
BRIEF-CASES AND MUSIC FOLIOS, 128
BRISTLES (See also "Brushes")
  fiber, 113
  sources,
    American, Chinese, French, German, 113
    Siberian, 112
BRONZED LEATHER, 62
BRUSHES,
  backs, 114
  bristles,
    compound drawn, 118
    compound set, 118
  care of, 119
  manufacture, 118
  qualities, 112
BUCKSKIN, 7, 175, 188
BUENOS AYRES HIDES, 13
BUFFING, 76


## C


CABIN-TOP BAG, 81
CABLE SEAM, 179
CADET GLOVES, 188
CALFSKIN, 5, 73, 133, 188
  Danish, 144
CAPE, 167, 188, 190
CARE OF GLOVES (See "Gloves, care and cleaning")
CARE OF LEATHER, 150
CARRY-ALL, 81, 90




Digitized by Google

CELLULOID, 115 (See also "Notions Manual")
CHAMOIS, 8, 134, 168, 174, 188, 190
CHAMOYED LEATHER DYEING, 60
CHAMOYING,
  bleaching, 43
  definition, 25, 41
  fat-liquoring, 43
  glove leathers, 172, 173
  preparation of skins, 41
  stocking or milling, 42
  use, 41
  washing and pressing, 43
CHEMICAL TANNAGE, 25
CHEVREAU, 165
CHEVRETTE, 165
CHROME TANNING, 25
  characteristics, 38
  glove leathers, 172, 188
  history, 39
  process, 38
CHROME-TANNED LEATHER, 47, 59, 73
  pattern, 73
CLASP AND TRIMMINGS, MATERIALS, 79
CLEANSING SKINS, 17
CLOTHES BRUSHES (See "Brushes")
COAL TAR DYES, 60
COLLAPSIBLE BAG, 81
COLORS, 61, 65, 72, 87, 148
COLT, RUSSIAN, 144
COLTSKIN, 8, 71, 74
CORDOVAN, 58, 92, 94, 128, 142
COTTON,
  Egyptian, 183
  sea island, 183
COVERS, 128
COWHIDE, 5, 71, 73, 74, 133
CRINOLINE DESIGN, 102
CROCODILE SKIN, 4, 71, 75
CURRYING (See also "Dressing")
  definition, 45
  purpose, 45
  shaving, 46

## D

DECORATION OF LEATHER,
  color, 131
  designs, 132, 136
  gilding and bronzing, 131
  methods used for different leathers, 133
  staining, 130
  stenciling, 131
  tooling, 129
  tools, 134
DEERSKINS, 7, 81
DEHAIRING, 20, 171
DESIGN (See "Decoration of Leather")
DESK BASKETS, 127
DESK SETS, 127
DOESKIN, 175
DOLING, 173
DRESSING (See also "Currying")
  animal oils, 50
  drum-stuffing, 52
  effect on leather, 154
  fillers, 52
  glue, 52
  hand-stuffing, 52
  oils, 49
  soaps, 51
  varnishes, 51
  vegetable oils, 51
  waxes, 51
DRYING, 15, 32, 53
DYEING,
  bath, 57
  chamoyed leather, 60
  chrome-tanned leather, 59
  flat surface, 58
  general principles, 55
  methods, 57
  silk, 97
  water, 56
DYES,
  aniline, 61

Digitized by Google

Dyes—*Continued*
kinds, 60
natural, 61

E

Ebonite, 115
Egging, 35
Electrical Tanning, 25
Elkskin, 7
Embroidery (See "Gloves, Decoration")
Enameled Leather, 76, 94

F

Fat-Liquors, 43, 49
Fiber, 87
Filet, 179
Finishing Processes,
boarding, 73
buffing, 76
embossing, 74
enameling, 76
fluffing, 75
glossing or glazing, 73
glove leathers, 173, 174
graining, 72
patent leather, 77
satin or glove leathers, 79
waxed leathers, 78
Fishskins, 10, 92
Fleshing, 21
Formaldehyde Tanning, 25, 40, 172
Fourchettes, 177, 178
French Kid, 37
French National Gloves, 165
Frogskin, 11
Full Pique Gloves, 179

G

Gas, Effect on Leather, 153
German Silver, 98
Glacé Gloves, 164, 168, 174
Gladstone Bag, 81
Glazed Leather, 37, 38, 39, 66, 67, 73
Glove Leathers, 58
cape, 166, 167
chamois, 165, 168
characteristics, 169
kid, 165
chevreau, 165
chevrette, 165
French National, 165
lambskin, 165, 166
mocha, 166, 167
Schmaschen, 169
sheepskin, 166
Glove Skins, Preparation,
branning, 169, 171
chamoying, 173
chrome tannage, 172
cleansing, 169, 170
dehairing, 169, 171
doling, 173
finishing, 173
formaldehyde tannage, 172
liming, 169, 170
tanning, 172
tawing, 172
treatment of washable leathers, 174
Gloves,
care and cleaning,
cleaning, 208
removing from hands, 207
washing, 208
wrapping, 207
centers, 195
children's, 189
cotton, 185
chamoisette, 164, 186
chamoisuede, 186
doette, 186
lisle, 164, 186
suede lisle, 186
suedine, 186

Digitized by Google

GLOVES—*Continued*
decoration,
embroidery, 178–179
filet, 178–179
Paris points, 179
plain points, 178
spear points, 179
stitching, 178
fabric,
characteristics, 185
cutting and sewing, 184
divisions of department, 164
manufacture, 183
materials, 182
French National, 165, 166
glacé, 163, 168, 179
history, 193
knitted, 164, 186, 187
linings,
chamois, 191
cotton, 191
fleece, 191
fur, 191
knitted, 191
lambskin, 191
leather, 191
linen, 191
seamless, 192
silk, 191
slip-in, 192
wool, 191
manufacture,
cutting, 177
decoration, 178
finishing, 180
laying off, 180
parts, 177, 178
patterns, 176
sewing, 179
men's,
cadet, 188
colors, 188
doette, 189
grip palms, 188
GLOVES—*Continued*
men's—*Continued*
horsehide, 188
loose pattern, 188
motor and driving, 188
silk, 189
modern industry, 194
parts,
fourchettes, 177, 178, 179
hearts, 177, 178, 179
quirks, 177, 178, 179
seams,
cable, 179
over, 179
pique, 179, 188
prix, 179–188
round, 179
silk,
double tipping, 185
jersey, 184
Milanese, 184
source of, 182
tricot, 184
sizes,
American system, 205
French system, 205
men's sizes, 204
women's sizes, 204
suede, 163, 168, 172
wool, 183
GLOVE-SHOE LEATHER, 79
GOATSKIN,
characteristics, 6, 71
sources, 6, 71
GOLF GLOVES, 189
GRAINING, 92, 94
GREEN HIDES, 15
GRENOBLE, 165
GUN METAL, 99

## H

HAIR BRUSHES (See "Brushes")
HAIR, IN THE, 170

Digitized by Google

HAIR REMOVING, 20
HALF-PIQUE GLOVES, 179
HAND-BAGS (See also "Bag-Making")
  attaching, 100
  clasps and trimmings, 97
  cutting, 99
  sewing, 100
  varieties, 2, 91
HARD RUBBER, 115
HAT BOX, 86, 90
HEARTS, 177, 178
HEAT, EFFECT ON LEATHER, 151
HEMLOCK BARK, 26
HIDES (See "Skins")
HISTORY OF GLOVES,
  antiquity, 193
  introduction of machinery, 194
  modern industry, 194
HISTORY OF LEATHER,
  antiquity, 138
  in United States, 140
  primitive methods of tanning, 139
  sources of raw material, 141
HOLD-ALL, 81
HORSEHIDE, 8, 71, 74, 188
  Russian, 144

## I

IMITATION LEATHER (See "Substitute leather")
INDUSTRY (See "Leather industry")
IVORY, 117 (See also "Jewelry and Silverware Manual")

## J

JAPANNED LEATHER, 76

## K

KANGAROO, 9
KID, 7, 37 (See also "Glove leathers")
KIPS, 14
KIT BAG, 81
KNITTING MACHINES,
  adjustable, 187
  circular, 187
  flat fabric, 186
  history, 186
  mitten, 187
  stocking frames, 186

## L

LAMBSKIN, 6, 166, 168
LAYING OFF GLOVES, 180
LEAMINGTON BAG, 80, 81
LEATHER,
  affected by,
    acids and alkalies, 154
    heat, 151
    light and gas, 153
    oil, 152
    paste, polish, dressing, 154
    water, 151
  care of, 150
  decoration (See "Decoration of leather")
  differences in, 4
  divisions of the department, 1
  finishes, 92
  history of (See "History of leather")
  qualities (See "Qualities of leather")
  stock, 1
  varieties, 91
LEATHER INDUSTRY,
  modern centers, 135
  other countries, 142
  United States, 141
LEATHER-BOARD, 68
LEATHERINES, 70
LEATHEROID, 70
LEE, WILLIAM, 186
LEVANT, 6, 73, 92, 94, 128
LIBRARY EQUIPMENT, ARTICLES, 126
LIBRARY SETS, 127
LIGHT, EFFECT ON LEATHER, 153

Digitized by Google

LIMING, 18, 170
LININGS, 84, 147
LININGS, GLOVE (See "Gloves, Linings")
LISLE THREAD, 183
LUNCHEON CASES, 90, 111

M

MADISON BAG, 80
MANICURE SETS,
  complete, 107
  simple, 108
MATTING, 87
METAL MOUNTS, 97
MILANESE SILK, 184
MITTENS, 185, 187
MITTS, 190
MOCHA, 76, 167, 175, 188, 190
MOROCCO, 2, 75, 92, 128, 133
MOTOR-RAILBAG, 81
MOTOR TOILET CASES, 110

N

NAPA DIP, 172
NICKEL, 98

O

OAK BARK, 26
OFFENBACH-AM-MAIN, 136
OILS, 32, 42, 50, 150, 152
  effect on leather, 153
OVER-NIGHT BAG, 81
OVER-NIGHT CASE, 86, 109
OVERSEAM, 179
OXHIDES, 13

P

PASTES, POLISHES, AND DRESSINGS, 154
PASTING, 35
PATENT LEATHER, 77
PELTS (See "Skins")
PICNIC BASKETS, 111
PIGSKIN, 8, 71, 74, 134
PIQUE GLOVES, 179
POCKETBOOKS, 101
POINTS, 178, 179
POLISHES, 154
PORPOISE SKIN, 10
PORTFOLIOS, 127
PRIX SEAM, 179
PULLMAN BAGS, 109
PURSES, 91, 101

Q

QUALITIES OF LEATHER,
  color, 65
  differences in, 4
  durability, 64
  finish, 65
  good leather, 63
  resistance to water, 65
  softness, 64
  texture, 63, 133
QUIRKS, 177, 178, 179

R

RAISING, 23
RAW HIDES, 12 (See also "Skins")
RAW, IN THE, 170
RECORDING BOOKS, 128
ROUNDING, 22
RUSSIA LEATHER, 94, 128, 133, 144

S

SALESPEOPLE, SUGGESTIONS,
  gloves,
    care of stock, 200
    correct fitting, 200, 202
    dress fashions, 199
    selecting proper gloves, 201
    sizes, 198, 204

Digitized by Google

SALESPEOPLE SUGGESTIONS—*Continued*
leather goods,
arrangement and display, 146
care, 150
manufacture, 148
material, 147
suitability, 149
SATIN LEATHER, 79
SCHULTZ, AUGUST, 39
SCOURING, 48
SEAL GRAIN, 73
SEALSKIN, 9, 71, 74
SEAMS (See "Gloves, seams")
SEWING GLOVES, 178, 179
SHARKSKIN, 10
SHAVING, 6
SHEEPSKIN, 5, 71, 133, 166, 188, 189
SHIRT-BOTTOM BAG, 81
SHOES, 19
SILK BAGS, 95
SIZES OF GLOVES (See "Gloves, sizes")
SKINS,
classification, 12
hides, 14
kips, 14
methods of preservation, 15
quality, 12
salted, 15
skins, definition, 14
sources, 141
weight and size, 14
raw,
dried, 15
dried and salted, 15
fresh or green, 15
grades, 13
structure, 18
SNAKESKIN, 11
SOLE-LEATHER, 19, 30
SPANISH LEATHER, 135
SPLITS, 39, 47, 75, 77
SPLITTING, 47
STANDARD OBLONG SUITCASE, 85
STATIONERY CABINETS, 127
STITCHING GLOVES, 178, 179
STOCK,
classification, 116
leather, 1
STOCKED SKINS, 170
STRIKING, 31
STUFFING, 48, 52
SUBSTITUTE LEATHER,
chamois leather, 70
imitations, 68, 75
leather-board, 68
leatherine, 70
leatheroid, 70
reasons for, 67
varieties, 67
SUEDE GLOVES, 163, 168, 172, 180
SUEDE LEATHER, 94
SUITCASES,
body, 86
fitted, 110
linings, 88
making, 88
materials, 86
styles, 85
SUMAC, 26, 28
SWELLING, 23

## T

TANNAGE (See "Tanning")
TANNIN, 25
sources,
oak and hemlock bark, 26
sumac, 26, 28
TANNING (See also "Tawing")
action of lime on skin, 19
by machine, 31
chamoying, 23
chemical, 25, 34
chrome tanning, 25, 38, 39, 59, 73
cleansing, 17
dehairing, 20
electrical, 25, 44
fleshing, 21

Digitized by Google

TANNING—*Continued*
formaldehyde, 25, 34, 40
glove leathers, 172
lining, 18
methods, modern, 29
oiling, 32
primitive methods, 28, 139
purpose, 24
raising and swelling, 23
rounding, 22
sole-leather, 30
structure of skin, 18
sweating, 20
vegetable, 25
TARBOARD, 87, 88
TAWING,
definition, 25
disadvantages, 37
egging or pasting, 35
finishing processes, 36
glove leathers, 172, 175
process, 35
TEA BASKETS, 111
TELESCOPE CASES, 88
THERMOS BOTTLES, 124
TOILET ARTICLES, 106
materials, 106
TOILET CASES, 105
manufacture, 109
TORTOISE SHELL, 117 (See also "Jewelry and Silverware Manual")
TRANKING, 176
TRANKS, 177
TRAVELING ACCESSORIES, 121
automobile supplies, 123
materials, 122
thermos bottles, 124
TRAVELING BAGS,
fitted, 110
points desired, 148
styles, 85
TRICOT SILK, 184
TUMBLER, 36

U

UNITED STATES GLOVE INDUSTRY, 196
UNITED STATES LEATHER INDUSTRY, 140

V

VACHETTE, 94
VEGETABLE TANNING, 25, 38
VELLUM, 134
VICTORIA BAG, 80

W

WALLABY, 9
WALRUS SKIN, 9, 71, 74
WASHABLE GLOVE LEATHER, 174, 188
WASHING, 43
WASHINGTON BAG, 80
WATER, EFFECT ON LEATHER, 157
WAXED LEATHERS, 78
WEEK-END BOX, 85
WHITE, IN THE, 178
WICKER, 87
WINDSOR BAG, 80
WOOL GLOVES, MITTENS, LININGS, 191

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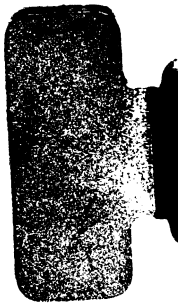

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